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Coöperative Action Needed

WHEN scientists such as Millikan, Compton, Carrel, and Perrin—each one a Nobel Prize winner—when such men declare that the right kind of human behavior is urgently needed these days to direct toward more worthy social ends the activities not only of leaders but also of followers, we should realize clearly that to give earnest consideration to the best ways and means of developing the right kind of human behavior is not being academic, emotional, or impractical. As a matter of fact, industrialists, labor leaders, and even statisticians, men who are supposed to be cold, hard-headed, and matter-of-fact, are becoming more and more aware of the fundamental need of the right kind of human behavior in every human endeavor and are frankly admitting it.

We have been spending millions of dollars in research in the physical sciences. Why not begin to spend more money on research in social sciences which deal with the behaviors and customs of people in their social and economic endeavors? Research in the social sciences is what we need very urgently to bring about less emotional and more effective thinking and to devise practical ways of improving the quality of human behavior.

In a recent article in a national magazine, Dr. Robert M. Hutchins stated substantially that there are two basic considerations which should be given special attention in the building of college curricula. The first is the determination of what is best for the learner, and the second is the giving of that best to the learner in the most effective way. There seems to be growing agreement that what is best for the learner is the acquisition of those disciplines which enable him to mold and to direct his behavior to socially desirable ends. The ultimate test of the effectiveness of junior college education, therefore, should be the degree of effectiveness with which the junior college education provides experiences which help the learner to acquire the basic disciplines that enable him to make his behavior continuously satisfying to him and more useful to the social groups in which he has his activities.

These considerations suggest at once this question: In terms of what kind of human behavior should a program of junior college education be planned?

Any answer to that question requires the consideration of the need of an acceptable philosophy which should be the basis of the building of junior college curricula. We hear frequently the expression, "The American Way" or "The American Way of Life." It is obvious that this expression has to do with human behavior. "The American Way" is what it is because of a philosophy of life which dominates our social and educational activities. Therefore, the first practical thing which should be done in formulating a plan of junior college education is to agree on a philosophy in terms of which junior college curricula are to be constructed. The second thing which should be done

is to develop techniques, practical ways and means, of building curricula; and the third thing is to develop standards which may be used in appraising the effectiveness of the outcomes of these curricula. The fourth and last thing is to develop a placement service which will take the learner in an orderly and organized way from school or college to gainful employment with advantage to both the employer and the employee.

The practical steps, then, in planning a program of junior college education should be:

1. The formulation of an acceptable philosophy.
2. The development of techniques for the building of curricula.
3. The development of standards for the appraisal of the outcomes of curricula.
4. The development of an effective service for the placement of the learner in gainful employment.

THESE practical steps can be taken successively if we coördinate our activities. For instance, the activities of the American Association of Junior Colleges should be coördinated with the activities of state associations, which in turn should be coördinated with the activities of local organizations. This means that the diagnostic studies of national bodies should be made available in orderly and organized ways to state and to local organizations.

The responsibility, then, which confronts us is best expressed by Dr. Charles H. Judd in these words:

"There must be invented and installed a new kind of general education, and the relation of general education to vocational education must be made clear. General education must cope with new lines of thinking and new problems. Who is to invent the content of this new education? There are two negative answers that can be given to this question. The family cannot, and the ordinary teacher in the secondary school trained in the conventional liberal arts curricula cannot do it."

To what agencies shall we turn for the development of a program of education suited to the present social and economic order? There are now national agencies which are functioning quite efficiently in securing for us "the why and the what." We need a national organization which will give us the "how," the techniques required for implementing the findings of national diagnostic studies.

Vital diagnoses relating to junior college education have not brought about as yet the implementation and coöperative action which they deserve. Through the reorganization of the American Association of Junior Colleges it is definitely planned under the direction of the executive secretary, Dr. Walter C. Eells, to make practicable, coöperative action so that the Association can help to develop implementing techniques of definite and practical value to every junior college, thus making it possible for each junior college to put into practical use the findings of diagnostic studies relating to junior college problems and to enhance their usefulness in the areas which they serve by meeting more adequately the needs and the demands of our changing social and economic life.—NICHOLAS RICCIARDI, *President, San Bernardino Valley Junior College; President, American Association of Junior Colleges.*

Two Important Publications

WITHIN the next two or three weeks will appear two important publications of the California Society of Secondary Education. The first of these is the *California School Directory,* which contains the names of all secondary teachers in California besides a variety of other information. Except for a slight increase in size due to the presence of several new schools in the

State, this book remains essentially the same as it was last year. Innovations last year which made the book more usable included: A sewed binding which permits the book to open out flat, a more complete index, and the presence of page guides. The *Directory*, as usual, sells for $5. A few copies are still for sale although most of the lot printed have already been reserved.

The other important Society publication to appear soon is the first monograph in the *California Society of Secondary Education Monograph Series*. This booklet, announced in last month's JOURNAL, is the "Report of the Committee on Guidance of the Association of California Secondary School Principals." Most important part of the monograph is the section which presents an appraisal of counselors' activities in the secondary schools of Southern California. The monograph sells for 25 cents.

Both the *Directory* and the entire *Monograph Series* are included with an institutional membership in the Society. All corporate members are entitled to the *Monograph Series*.

Next Month

NEXT month's symposium will consist of a series of descriptions of the job that is being done in eight or nine outstanding California junior high schools. Although these are not necessarily schools which are classed as "progressive," they are schools which are doing a constructive piece of work.

Among the other articles which will be included in the December issue of the JOURNAL are three of unusual importance. The first of these is the monthly out-of-state article, a description by Robert O. Beebe of the work of the Essex County Vocational Schools, Newark, New Jersey. Superintendents who heard the talk by Dr. Edwin A. Lee at the recent meeting in Pasadena will remember how enthusiastic he was over the progress being made by these schools. A second important article for next month is a report of the Committee on Cumulative Records of the Association of California Secondary School Principals. Written by H. B. Brooks, principal of the George Washington Junior High School, Long Beach, it describes the survey made of records now in service and the purposes behind the new recommended form. A third important article for December is a follow-up of the article in this month's JOURNAL by Frederic T. Shipp. Written by Forrest G. Murdock, Mr. Shipp, and Dr. Harold C. Hand, it shows how the schedule of classes at San Jose High School has been arranged to put into practice the program outlined in the November article.

CCC Camp Education

The opening of schools in September has a stimulating effect upon education in one of America's newer institutions—the Civilian Conservation Corps. Of the 65,000 new enrollees who entered the CCC Camps on October 1, it is predicted that about 57,000 will be enrolled in educational classes of one kind or another. During the past year 87 per cent of the enrollees in CCC Camps received educational training on a voluntary basis. This year one full-time educational adviser plus part-time assistance from Army men and conservation specialists, a space of 2,600 square feet for an education office, a library, a reading room, and four or five classrooms and vocational shops will be available in each camp. Coöperation with schools and colleges which offer opportunities for enrollees to take correspondence work, attend college, accept scholarships or N. Y. A. aid will continue.

A Forestry and Lumbering NYA Project

By N. H. McCOLLOM

THE California junior colleges offer two years of training beyond the the high school in vocational and cultural courses on a college level of instruction. These institutions are indeed the "People's Colleges," organized under the secondary school system of the state, supported by public funds derived from state and district taxes, and extending privileges of admission—without tuition charges—to all twelfth grade graduates or adults over twenty-one who wish to further their cultural, academic, or specific vocational training. While all of the forty-two California junior colleges offer general cultural and lower division courses leading to transfer to the university, most of the colleges have also developed specific vocational courses, adapted to the needs and demands of the youths of the particular district served or designed to take advantage of the natural training facilities of the district.

As one of these vocational courses the Division of Vocational Forestry and Lumbering of the Lassen Junior College has been developed in the center of California's Pine Belt, where the woods, mills, box factories, and the United States Forest Nursery provide laboratory facilities unparalleled in the State. This course itself is important and deserving of extended description,

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Probably all students of the junior college agree that it has functions other than serving as a lower division of the university. And amongst these functions, most will agree certainly, great importance must be attached to the offering of vocational courses on a semi-professional level. It is to descriptions of courses of this type that the present symposium on "Unique Courses in California Junior Colleges" is rather largely devoted. Although each of the eight contributions in this symposium is a separate article in itself, it is possible to arrive at certain generalizations from a perusal of them. Among the most important of these generalizations is the indication that California junior colleges, at least those whose classes are described here, are attempting to adapt their technical courses to the needs of their communities and to the particular facilities available in their communities—be they social, geographical, or intellectual facilities—which tend to insure the success of the courses.

Articles in this symposium include those on the following topics: courses in oil machinery at Taft Junior College, written by Philip S. Hasty and John E. Colbert; the curriculum for library clerical aides at Los Angeles Junior College, by Miss Janice Pidduck; the work offered for aviation technical workers at San Diego, by Edwin A. Ross; a course in business education at Fullerton, by L. O. Culp; training for the building trades at Visalia, by Lyle B. Pember; the Hotel and Restaurant Division of the San Francisco Junior College, by Mrs. Mozzelle Milliken; and the forestry and lumbering project at Lassen, written by N. H. McCollom. An additional article in this symposium describes a type of work which certainly is "unique" although it is not a technical course. This article, written by Harry E. Tyler, describes the museum of the Sacramento Junior College.

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but mention of one unique phase of it will suffice for the present brief article.

APPLICATIONS for admission to the Division have been received from prospective students in all parts of the State. Disconcerting as it may seem, a great number of these applications have been accompanied by cautious inquiries about the cost of board and room and by earnest pleas for part-time jobs by which the applicant might partially finance his further education—this is characteristic of three-fourths of those received during the past summer. Almost simultaneously with our realization of the extent of this problem came further confirmation from another source as to this desire of youth for further education and their need for financial aid in attaining that purpose. And with it came a partial solution, for Mrs. Anne deG. Treadwell, State Director of the National Youth Administration through Supervisor F. S. Clough, proposed the establishment of a resident training unit of thirty students at Lassen Junior College.

This entire matter was further discussed before the local board of trustees. According to the proposal, the Junior College was to set up academic requirements for admission. Applications were to be received by the NYA regional supervisors and forwarded with transcripts of previous training to the College. These applications were to come from youths between 18 and 24 years of age, who could not for financial reasons otherwise continue their education. These youths were to be required to work sixty hours per month, for which they would be paid $27.50 from federal funds. This income was to cover their room, board, clothes, and all other expenses.

With the adoption of this NYA program our problems multiplied. First it was necessary to find a suitable project or projects upon which thirty young men might profitably devote sixty hours of work per month through a period of nine months. The second problem was to provide board and room for thirty or more hungry boys for a price somewhat below $20 per month.

The United States Forest Service and the Susanville Chamber of Commerce coöperated in the solution of the first problem. Susanville, located at an elevation of 4,200 feet, enjoys zero weather and sufficient snow close at hand to provide a winter sportsman's paradise for a period of two to three months. Ten miles from Susanville on the Red Bluff highway, accordingly, a location was selected, and through the services of U. S. Forest Supervisor A. G. Brenneis plans were drawn for the erection of a rustic shelter house, with sanitary facilities, a bridge, parking space, a bonfire pit, toboggan ways, ski ways, and a cross-country ski trail. The Chamber of Commerce and various service organizations donated funds to purchase the necessary cement, pipe, nails, and so forth, for the construc-

In this article, Mr. McCollom, district superintendent and principal of the Lassen Union High School and Junior College, Susanville, tells how his community and the National Youth Administration have combined to make it possible for boys from other localities to avail themselves of the course in Forestry and Lumbering offered in the Lassen Junior Colelge, and at the same time work their way through college.

Because of the opportunities presented by this NYA project and because Lassen Junior College has attempted to offer semi-professional courses adapted to the needs of local youth, Mr. McCollom concludes that this school truly has become a "People's College."

tion. Smaller projects in mapping, data compilation, maintenance, and nursery work, will keep the boys occupied during inclement weather, when outside work cannot be performed.

Good fortune and local resources assisted in the solution of the second problem. The Alpine Hotel, formerly operated by the Lassen Lumber and Box Company for housing and boarding its unmarried employees, was rented, with steam heat and electricity provided from the company plants. The thirty NYA students united with thirty regular forestry students to form the Forestry Club. A cook was hired, an NYA supervisor appointed, and the boys organized as a coöperative group, rotating the responsibilities of helping in the serving of meals, washing dishes, cleaning, and maintenance. The cost for food, shelter, general laundry, and incidentals including telephone service, has been kept below $17.50 per boy per month.

College education has indeed been made available for the boy who wants to get ahead.

EDUCATORS have been making desperate attempts to agree on an educational philosophy for the junior college. They have sent out exhaustive questionnaires in an effort to establish policies and objectives, to agree on terminology, and to standardize practice and procedure. Much good has come from these studies, but the development is rapid, the cause is an urgent one, and the guide-posts of progress are self-evident. Cultural and academic courses must continue, but each institution must hasten to develop terminal, semi-professional courses to meet the needs of the young people it serves and take advantage of its natural resources and economic opportunities. And after such courses have been established, the next step in the junior college program is an organized placement and follow-up service.

At Lassen we have attempted to meet our obligations for establishing appropriate terminal courses, and now we are beginning to move in the direction of placement and follow-up. To date all forestry students have been placed in jobs during the vacation period between their first and second year of training and after graduation. This placement has been made possible through the cooperation of the United States Forest Service, the State Division of Forestry, and the local lumber companies. Individual record cards have been maintained showing scholastic attainment, vocational and trade aptitudes based on field observation, employment records, and specific supplementary training. These records will undoubtedly prove valuable in making recommendations for future advancement or placement. We realize, however, the need of further expansion of this placement service with provisions for follow-up contacts and an extension or retaining program. Then indeed will we have the "People's College."

Dictator Techniques to Be Studied

A "laboratory" in which to study dictatorial techniques and ideology is announced by the University of California Extension Division in Los Angeles with the offering of a new adult education course titled Governments of European Dictatorships.

Public demand for a course in which to study dictatorship governments is responsible for the new Extension course, which will offer an introductory insight to the contemporary governments of Italy, Germany, and the Soviet Union.

A Semi-Professional Course In Oil Machinery

By PHILIP S. HASTY
JOHN E. COLBERT

One of the four Technical Institute courses in the Taft Junior College is the course in Oil Machinery Operation, Upkeep, and Repair. A description of this course, together with a defense of the philosophy on which all the semi-professional courses in the schools are based, is included in the accompanying article.

Mr. Colbert and Mr. Hasty, who write this article, are instructors, respectively, in technical related subjects and in oil well machinery. Mr. Colbert is a member of the American Petroleum Institute and the American Society for Metals. For eight years prior to coming to the school he was in the research and development division of the Standard Oil Company. Mr. Hasty is a pattern-maker by trade. He has been a director of vocational education in the Topeka, Kansas, Public Schools and for four years was director for disabled soldiers in the Rehabilitation Division of the Federal Board for Vocational Education.

THE Taft Union High School District, of which the Junior College is a department, comprises about three hundred sixty-eight square miles in the heart of one of the most prolific and stable petroleum producing zones. To meet training needs of the petroleum industry in the district, the course in Oil Machinery Operation, Upkeep, and Repair was first offered in 1935.

The main objective of this course is to develop skill in the use of machine and hand tools required in the construction, repair, and upkeep of oil-well machinery. It is designed to familiarize the student with the operation and care of machinery and equipment used in the discovery, recovery, transportation, and storage of natural gas and crude petroleum.

A well equipped machine shop within the school plant has been made available for the course. This shop is the center for training in most of the manipulative work. Here also the student acquires a knowledge of safety-first rules and regulations and such technical information as is necessary to do the job assigned to him. Every effort is made, however, to avoid loading the student with cold storage information.

The finest laboratory is available in the surrounding fields, where almost every conceivable operation in oil field practice and procedure is within a driving distance of from thirty to forty-five minutes. Some of the operations which can be observed and studied by our students are the following: erecting of derricks, installing drilling machinery, setting up boiler plants, starting of actual drilling, coring and taking samples of formation, use of various types of bits for varying formations, running casing in the well, cementing casing to shut off water strata, drilling into oil producing sands, testing the well for production, installation of pumping equipment, and maintenance work in keeping wells on production.

In addition to the opportunity of utilizing all of these operations, the school can take advantage of many types of power plants using electric motors, steam engines, natural gas engines, and Diesels. Some are compressor plants where gasoline and other

by-products are taken from natural gas. Others are pumping plants or stations moving crude oil through pipelines to various destinations.

In this vast field of one industry lies a real opportunity for an educational service.

TO a broadly diversified student body the Taft Junior College offers two types of curricula:

1. Lower Division University Curricula.
2. Semi-professional Curricula.

The lower division university courses are of the conventional type, designed to satisfy junior certificate requirements for most standard universities.

Courses offered in the semi-professional curricula usually do not grant transfer credit to universities. They do, however, fulfill the requirements for graduation with the title of associate of arts. Physical education, hygiene, social science, and English are required subjects and must be successfully completed by all candidates for the degree. Each student may choose one of the following major fields in which to do his other work:

1. General Business
2. Secretarial
3. Liberal Arts
4. Oil Machinery
5. Welding
6. Automotive Mechanics
7. Carpentry

The last four named are designated as Technical Institute courses and are provided specifically to prepare students for entering the industrial fields with satisfactory technical knowledge upon which to build for advancement. Entrance into each curriculum presupposes high school shop experience, one year of mechanical drawing, and a satisfactory working knowledge of arithmetic.

Technical Institute courses are set up under what is known as the California Plan and approved by the State Bureau of Trade and Industrial Education. This plan provides that the student shall spend three clock hours per day in the actual performance of the trade for which he is preparing. In addition he is required to study technical related subjects one hour daily. Thus a total of four hours out of each school day is devoted specifically to trade instruction.

A typical curriculum of this type is given below:

FIRST YEAR

1st Semester	*Units*	*2nd Semester*	*Units*
Oil Machinery 88A	5	Oil Machinery 88B	5
Technical Related Subject	3	Technical Related Subject	3
Mechanical Drawing	3	Mechanical Drawing	3
Social Science 76A	2	Social Science 76B	2
English 62A	3	English 62B	3
Physical Education	½	Physical Education	½
Total	16½	Total	16½

SECOND YEAR

1st Semester	*Units*	*2nd Semester*	*Units*
Oil Machinery 89A	5	Oil Machinery 89B	5
Technical Related Subject	3	Technical Related Subject	3
Social Science 77A	2	Social Science 77B	2
Hygiene	2	Electives	6
Electives	4	Physical Education	½
Physical Education	½		
Total	16½	Total	16½

THE work in the technical related classes falls, broadly, into three main fields of study — mathematics, science, and drawing. Courses are built around individual and community needs and a detailed analysis of the trade.

The mathematics in these related classes is intended principally for students of Oil Well Machinery and Welding. In the first year of the trade course the mathematics becomes, of necessity, almost entirely a matter of individual instruction. Each boy establishes his own level, beginning with a review of the four fundamental operations in arithmetic and progressing from one level to the next, as rapidly as he individually is able. The plan is to include those practical fields of mathematics which are commonly used in the everyday lives of all of us.

Class lectures and discussions and the working of several illustrative problems on the blackboard accompany the introduction of new steps or theory of common interest to the group. Emphasis is placed on a general procedure in attacking all practical problems—first, a clear and concise statement of the problem, including any illustration or graphical presentation which may aid in the solution; second, bringing to bear all known facts; third, the acquisition of additional facts if necessary; and, finally, an orderly arrangement of the problem and the systematic application of known and acquired facts in its solution.

Numerous tests are used to check the progress of each student from level to level. If he fails to make a passing grade he is required to rework the problems which are wrong and resubmit the lesson. Quarterly tests are used to assist in establishing the level as well as the grade of each student at the regular working periods.

For those who are capable, the work of the first year includes a more intensive study of decimals and decimal equivalents; percentage; ratio and proportion; squares and square root and their application in the industry; angles and triangles; the use of constants as applied to the circle, square, equilateral triangle, hexagon, and octagon—shapes of everyday occurrence in the machine shop; areas and volumes applicable to the oil fields; weights of materials and specific gravity; the slide rule; arrangement of work, accuracy, and the efficient use of tables.

Second year mathematics includes a review and additional study of the slide rule, practical algebra, trigonometric functions (taught by the line value method), some acquaintance with logarithms and their practical application, belts and belting, gears and gearing, compound gearing, and the like. In this year students are encouraged to work more intensively along the line of mathematics in which they are particularly weak or for which they, for some reason, feel a special need.

All of the boys enrolled in trade classes having had one or more years of mechanical drawing are familiar with the form and construction of working drawings. To supplement this, considerable time is devoted to blueprint reading and to a study of actual drawings used in and about the oil fields. Additional time is devoted to freehand sketching of machines, machine parts, and to lay-outs of piping and machinery.

Drawing for welders includes blueprint reading and some freehand sketching of pipe layouts but is largely devoted to the development of patterns for sheet metal work and parallel line development of patterns for the fabrication of welded piping, which is used extensively in this area.

Science, in the first year, for both welders and oil well machinery students, takes the form of metallurgy and

metallography and is designed to familiarize them with the materials with which they come in daily contact in their shop work. The major portion of the time is devoted to a study of iron and steel and steel alloys. Some study is made, however, of the non-ferrous metals and their alloys. Numerous films, both silent and sound, are shown throughout the year and form a valuable aid in this instruction.

Practically none of our trade students at Taft have elected either physics or chemistry in the high school, so we have chosen to devote most of the time available for science during the second year to a study of the fundamental principles of physics.

Our laboratory table is fitted with air, water, gas, and necessary electrical connections. The "experiments" are not carried on with the usual "miniature" equipment used in college preparatory courses in physics nor are the calculations so minutely or laboriously carried out. All of the equipment we use is "life size" and applicable to problems of daily occurrence in the oil fields as well as illustrative of the fundamental laws by which the world of work has solved these problems.

Here again we have been able to use very effectively lantern slides, strip films, and industrial movies.

WE do not expect to make expert mechanics of all the boys who enroll for trade courses. The same philosophy of education will be found here that is being followed in almost any school situation, accompanied by a sound and practical philosophy of vocational education which can be understood by business men and industrialists as well as by the workers.

Every contact made by us with employers in general has brought out the fact that they demand more and more of the "fundamentals." "Give the young people more English and more mathematics," is the command of these people. Training in skills alone is not sufficient; attitudes and appreciations must be developed. Each interview made leads us to realize the absolute necessity for coöoperation and teamwork between academic and vocational departments. An understanding of the aims of each must be had by the other to the end that the teachings of each will have a definite application to life problems.

An oil company executive, in a recent interview, remarked that he was looking for a potential executive in every applicant for work. This statement in itself is a challenge to educators and cannot be overlooked. It is a challenge to our training as well as an invitation to make our counseling and guidance programs function more efficiently.

Education was originally only for the well-to-do and prepared them only for professional work or provided only a cultural background. This sort of education, extended to include everyone, has resulted in teaching boys and girls to covet jobs and positions for which they are not prepared and for which, frequently, they have few qualifications. It has resulted in much of our present discontent and maladjustment.

A purely classroom training, even along technical lines, fails to provide much help to young people in mechanical fields. There is an inborn desire in most boys to be active and to express this activity through the manipulation of material into useful form—oftentimes to give concrete expression to their fancies or imagination. For this there is too little opportunity in the traditional classroom, or it is often too long delayed.

Parents, in their efforts to give their boy opportunities which they them-

selves were denied, have many times taken from him all obligation for physical duties, without which he fails to develop a normal sense of responsibility. The trade course demands systematic responsibility of him, requiring the use of his muscles—at first awkwardly, perhaps, and painfully directed by conscious mental effort. Continuing this work over a period long enough to gain some dexterity, the boy is assisted in securing the all-round growth which should be his.

The desire for an "education" has too often been an end in itself. "White collar" jobs have been at a premium and oftentimes even the technically trained have sought office work rather than jobs in industry. Somehow the clerical worker has established a feeling and position of importance, and even the skilled worker, unless he has a deep rooted pride in craftsmanship, has been forced to feel that his work is of less value to the community and, worse yet, that it requires a lower grade of ability. This attitude has been fostered and practiced by too many schoolmen who advised boys having difficulty with "academic" subjects to "drop back" into the trade or industrial departments.

Schoolmen have coined the phrase "terminal courses" to distinguish between college-preparatory and noncollege-preparatory courses. They also frequently refer to the "stigma" that attaches to the noncollege-preparatory group. All of these things are unfortunate, for they tend to keep alive the idea that vocational training is not for the elite and that for a boy definitely to prepare to earn his living by using his hands bars the way to his usefulness and social progress in the community.

Fortunately, many broad-minded and well-informed educators, as well as many students, are finding out that a high type of intelligence is the first essential for success in these skilled trades and that the men engaged in them are among the "best people" in any community.

Advancement in any field of work, mental or physical, requires ability of a high type. Under the leadership of skilled mechanics, through their work in class and shop, most of our technical students are unconsciously acquiring good habits and a sane outlook on many of the perplexing problems with which life confronts us today. They are developing a confidence in their own ability and a determination to gain security through an adequate and permanent means of livelihood. Only through wise planning, strength of purpose, and constant struggle can such a goal be reached or even approached. In the final analysis we believe they are learning enough of the world of work to know the value of punctuality and regularity, of courtesy and coöperation, of loyalty, neatness, and health. We feel sure that these things are factors in dependability and that dependability is the keynote to success.

Dedication of Cubberley Building

Dedication of the new School of Education Building at Stanford University took place on Saturday, November 12. The building is the gift of Dr. and Mrs. Elwood P. Cubberley. On this same date, too, was given the first of the Cubberley Lectures, which are planned as an annual event to honor the former dean of Stanford's School of Education. The lecture was given by Dr. Harold Benjamin of the University of Colorado, himself a former student and colleague of Dr. Cubberley at Stanford.

A Curriculum for Library Clerical Aides

By JANICE PIDDUCK

A NEWLY launched curriculum, designated as the Clerical Library Aides course, is entering its second year at Los Angeles City College. Inaugurated in September, 1937, it has been the answer to a definite demand for such training.

Within the city and county limits of Los Angeles there are several hundred persons employed in performing the numerous clerical tasks which must be accomplished if a library is to run smoothly and serve its patrons well. These workers are variously designated as "juniors," "library typist clerks," "clerical library aides," or "library clerks," depending upon the system in which they work. Whatever the name, they are engaged in carrying out routine clerical operations—sorting, filing, alphabetizing, stamping, checking. In brief, these people are freeing their superiors, the professional librarians, from the bonds of detail, making the time of the latter available for the work they were trained to do as graduate librarians.

The Los Angeles Public Library, with its forty-eight branches and sixty-five stations, employs approximately one hundred eighty-five clerical aides; the Los Angeles County Library, at its central headquarters, gives work to approximately thirty more; the Los Angeles City Schools division of libraries and textbooks adds about one hundred more to the ranks. These three library systems, seeking workers, are the consumers which promoted the beginning of the Los Angeles City College Clerical Library Aides curriculum.

In all three library systems—city, county, and school—the position of "clerical library aide" is a Civil Service appointment. Examinations are announced, eligibility lists established on the basis of examination, and vacancies filled from the eligibility list.

This article is particularly interesting for it serves two purposes which are, to quote from a letter written by Rosco C. Ingalls, director of the Los Angeles City College: "It illustrates the procedures followed in making new semi-professional curricula, and it describes our response to Community needs and employment opportunities." The Los Angeles City College, formerly the Los Angeles Junior College, offers twenty-seven semi-professional curricula.

Miss Pidduck, who writes the article, is assistant librarian and instructor of the Clerical Library Aides Curriculum. She holds an M. S. degree from the Columbia University School of Library Service. Before going to Los Angeles, she was librarian at the Ventura Junior College.

WITH the announcement of the new curriculum at Los Angeles City College, students of all ages and educational background appeared. There was, on the one hand, the adult who had terminated her schooling with twelfth grade graduation, seeking speedy vocational training and impatient with the thought of two years of junior college. Again, there was the college graduate with B.A. degree, seeking additional training of a strictly vocational nature.

The question that quickly arose was: How long will it take me to complete the course?

In formulating an answer, the guiding principle has been to produce clerks who are junior college graduates. The length of time required to complete the clerical library training has been varied, therefore, according to the amount of education the applicant has had. Specifically, the student with the B.A. degree can finish her work in one semester; the high school graduate spends two years.

Having arrived at Los Angeles City College to enroll in the Clerical Library Aides curriculum, what does a student find herself studying? Is her entire time spent learning library routines or is she getting an introduction to many fields of learning as well? The curriculum, as drawn up by a committee of librarians and educators, looks thus on paper:

First Semester

English
World History
Introductory Economics
Typing
Business Courtesy
Science *or* Mathematics
Physical Education

Second Semester

English
World History
Introductory Psychology
Typing
Library (Catalog Cards and Call Numbers)
Science *or* Mathematics
Physical Education

Third Semester

English
Psychology *or* Philosophy
Public Speaking
Office Methods
Library (Reference Books)
Library (Library Routines)
Physical Education

Fourth Semester

English
Political Science
Public Affairs (Current Events)
Shorthand
Library Practice Work
Hygiene
Physical Education

It will be seen that an attempt has been made to incorporate into the two short years of junior college life a liberal selection of courses which will give the student a wide and varied background of cultural subjects. In actual practice, the course as outlined above is flexible in that some of the subjects listed may be omitted and others of the student's choice substituted. Sociology, for example, may be elected in place of economics, science in place of mathematics, language instead of public speaking. Inescapable are all the library courses and typing, the latter a *sine qua non* so far as the life of a library clerk is concerned.

IN working out the material to be included in the library courses, great care was taken to keep the instruction on a purely clerical level. It is distinctly not within the province of the Los Angeles City College to produce graduates who will rival the professional librarian. The training given on our campus does not pretend to equip students for anything but the clerical aspects of library work. This point cannot be made too clear in order to allay the fears of the professional groups who rightly view with alarm any move that may be suspected of undermining librarianship as a profession.

The course entitled "Catalog Cards and Call Numbers" includes a study of the meaning of call numbers and of the structure and use of the card catalog. There is much practice in building call numbers, in making simple catalog cards from master copy, and in library filing. Two units of credit are given for this course, which normally comes in the second semester of the junior college course.

The course dealing with reference books includes instruction and practice in the use of important reference tools and in the answering of simple reference questions. The reference books introduced are those with which every college student should be acquainted in order to do effective college work. This is also a two-unit course.

"Library Routines" is concerned with the simple mechanical processes related to the ordering, preparation, and care of books. Instruction in the methods used in keeping borrowers' records and the performance of circulation work is included. Practice in making bibliographies is also a part of the work.

Practice work is the culmination of all the aforementioned courses, giving the student an opportunity to apply what she has learned in the classroom. Having decided which type of library she prefers to do her practice work in—city, county, or school—the cadet is given an assignment of a minimum of 110 hours of supervised work. The professional librarian in charge of the library in which the cadet practices assumes the rôle of supervisor and reports on the quality of work done. After satisfactory completion of the period of interneship, the student is credited with two units of work.

THE course, as stated previously, was inaugurated in September, 1937. By the end of the first semester the numbers of students interested in entering made it apparent that selective processes would have to be set up in order to enroll only those who gave promise of being successful in clerical library work. Of those who sought the training, a considerable number seemed to be motivated less by clerical ability and a knowledge of what a library clerk is than by a vision of possible employment and the thought that here was "something to do." There came not only the girl whose past scholastic record predicted future success, but also the girl with definitely limited ability who explained her interest in the course thus: "I just love to read and mother thinks a library would be a nice place for me to work."

Out of the total number of interested persons, those most suited to the occupation must be chosen. The ideal library clerk, it is known, must be a swift and accurate typist. She must have a liking for routine tasks and be able to perform them day after day with speed. She should be attractive in appearance and she must be poised in manner. Because her work at the circulation desk brings her into contact with library patrons, she must enjoy working with people and be capable of meeting the public with ease and finesse. It goes without saying that she must have more than the average amount of personality and intelligence.

The task, then, has been to devise some method whereby those prospective students most nearly approaching the ideal could be discovered and chosen for enrollment.

To meet this need for selection, a rather elaborate procedure has been set up. First, four different test scores are assembled for each student concerned. The counselor's files supply ratings in terms of percentile rank on the Thurstone Psychological Examination and the Iowa Silent Reading Test (Advanced Form A). In addition, scores on the Thurstone Examination in Clerical Work (Form A) furnish an indication of ability to perform clerical operations quickly and accurately. A fourth test score is based on a so-called General Information Test. This last-named test, worked out by the author and not standardized, is an attempt to measure a student's acquaintance with authors and titles of important pieces of literature, with the outstanding names

in today's news, and with significant world events past and present.

Hesitating to depend entirely on written tests, we have developed the selection process a step farther and made the personal interview a part of it. An effort is thus made to evaluate carefully the personality factors involved.

With test results assembled, as well as information about the student's educational background, her library experience and typing ability, a committee of four interviews the candidate. The personnel of the interviewing group is significant: the placement secretary contributes her experience in judging employable persons; the head librarian sees the candidates as prospective helpers; the dean of women represents the administration; and the counselor gives help in interpreting and weighing test scores.

A special effort is made to keep the interview informal, in consideration of nervous young women who find a faculty committee an awesome group. Friendly questioning about hobbies, favorite magazines, reasons for electing the library course, and similar topics furnish opportunity for an attempted judgment as to the personal qualifications of the candidates. The degree of poise the student evidences, the quality of her voice, the appropriateness of her dress, the neatness of her appearance, these points are scored by the interviewing committee and a decision is then reached as to whether the candidate shall be enrolled.

THE newness of the Clerical Library Aides curriculum forbids any attempt to evaluate its success or predict its future significance to Los Angeles libraries. True, some members of the first class enrolled have already taken a civil service examination and are now employed. These people, however, are few in number and not representative of the graduates who will emerge from the more seasoned training that will result from experience in this field of junior college vocational preparation.

The California Library Association, vitally interested in the program, is planning to make a study of the experiment being carried out at the Los Angeles City College. The Association has gone on record as being opposed to any additional California junior colleges introducing such training until the work at this institution can be studied and evaluated. This is a wise attitude on the part of the organization.

It is to be hoped earnestly that clerical library training courses will not burgeon forth from all parts of the state. It is important to realize that any danger to the library profession lies in competition of partially trained clerical workers with professionally educated librarians for appointment to positions of professional grade. Los Angeles City and County are particularly fortunate in that the civil service regulations specify the qualifications for positions of professional and clerical grades, barring persons with less than professional preparation from professional positions. Progression from clerical to professional grades on experience only is not possible. That professional librarians are thus protected is the justification of the new curriculum in Los Angeles. A proposal to introduce such training in localities where clerical workers may successfully compete with professionally trained librarians is to be condemned.

Course Trains Workers for Building Trades

By LYLE B. PEMBER

Visalia's attempt to give training to young men who want to go into the professions and her effort to raise standards in the building trades have taken the form of a Technical Institute training course in Building Construction. This course, in the first year of its existence, has met with widespread community approval.

Coördinator for the Building Trades Course is Mr. Pember, who writes the accompanying article. He has come to this work from a practical background in the construction field. After studying architectural design in his college days at U. S. C., he spent seven years as labor foreman, apprentice and journeyman carpenter, and layout man, working on bridges, dams, factories, and office and school buildings. He also had a year at residential design and construction. During the school year 1937–38, just prior to his instituting this new course at Visalia, he taught trade extension classes in the Santa Ana Junior College night school.

VISALIA Junior College is laying the foundation this school year for a new course of training, an outgrowth of the gradual awakening of our people to the fact that too many of the men who are constructing our homes and public buildings today are either unskilled craftsmen or unscrupulous money-grabbers. Convinced after a careful survey of conditions in the building industry that the great majority of our present-day tradesmen are victims of circumstances beyond their control, the administrators of the Junior College have undertaken to assist in correcting the situation by supplying the opportunity that these tradesmen claim they have never had. This opportunity has taken the form of the Technical Institute training course in building construction.

Vocational training for the building trades is not, of course, a new idea, nor is the realization on the part of the people that there is a need for practical training courses in this field anything new. Awareness of the need is attested by the founding of such long-successful institutions as the Frank Wiggins Trade School in Los Angeles, the passage by Congress in 1917 of the Smith-Hughes Act which provides for appropriation of federal money to schools that offer vocational training, and the later passage of the George-Dean Act to increase the amounts of the Smith Hughes appropriations and broaden the fields of training in the institutions eligible for federal funds.

Two outstanding benefits are to be derived from offering a vocational building course in our schools today. One is that it affords a training period for the young men who elect the trades in preference to the professions as a means of livelihood. The other, an ultimate outcome of the first, is the much needed raising of the standards of the building trades methods from the chaos in which they exist today. That both benefits are sorely needed can hardly be doubted.

THERE always have been, and probably always will be, a certain group of young men who, upon finishing high school, are financially or naturally

unequipped for pursuing the university training that is required for the professions. So far, the majority of these young men have been forced, in order to obtain an education required by our highly competitive standards of living, either to attempt to swallow and digest the academic program concocted by our universities and junior colleges for an entirely different group of minds, or to go out and get a job with the hopes of deriving an education under the guidance of that inconsiderate, unemotional instructor, Experience.

There existed at one time in this country, and there still exists in some of the older European countries such as Sweden, an apprentice system whereby a young man might pledge himself (with the consent of his parents) to give diligently his time and labor to some accomplished craftsman for a designated period of years in return for the bare necessities of life and schooling in the trade. The results of such a system are commendable beyond a doubt, but in our country today, notably in the building trades, competition has narrowed the realms of apprenticeship to little more than the name given by organized labor to a young man who is allowed to work on the job with some of the tools of a tradesman for less pay.

Under present conditions, the tradesmen do not have the time on the job for teaching why or showing how, even though all but a few would be glad to undertake the careful training of apprentices. But they are too well aware of the few unscrupulous competitors who think and figure solely in terms of money made today. It is this comparatively small class of contractors who are dragging the standards of the building trades down by leaps and bounds. They set the price, and their competitors have to meet it or go hungry.

This little group of builders is composed of none other than the tradesmen who have fought their way through the ranks under the pressure of competition until by some slip of fate they have found themselves with enough money to buy a contractor's license—money, incidentally, is about all that one needs to get a contractor's license. Nobody has taken the effort to demonstrate for them the sterling values of fair competition and good quality. And, surely, members of the public do not encourage such an education, when in most cases they permit the lowest bid alone to determine who is to build the one home that they will probably buy in a lifetime, although they must depend almost entirely upon the integrity of that man for the lasting qualities of the home after it has been put to the test of the elements and the contractor is no longer responsible for what happens. True, we do have building codes that are necessarily becoming more rigid every year, but the taxpayer's burdens are plentiful without having to add more to them in order to hire an army of inspectors to enforce these codes, and that is what it would take to carry them out to the letter. That additional money might well be spent in the proper education of our coming tradesmen.

A training course in the building trades, contrary to popular belief, is not to be set up on a purely technical basis. The need for cultural training in combination with the technical is not to be ignored, for how is a tradesman to sell his services if he is unable to meet his client upon a somewhat equal level of self-expression? Moreover, for such a training course to function successfully, which means the acceptance of the young men by the trades upon the completion of their training period, the conditions must duplicate as nearly as possible those that actually exist in the fields for which the training is being given. The course in Building Trades

offered at Visalia Junior College is founded on these postulates.

THE term "Building Trades" covers many parallel fields, such as carpentry, plumbing, electric wiring, plastering, heating, ventilating, air conditioning, bricklaying, and numerous others, all of which are dependent upon one another for their existence. This interdependence, however, has never been fully appreciated by the craftsmen of the various trades, but it is one of the aims of the course at Visalia to teach the coördination of the separate fields. In their first year of training, the young men are all trained together in one class (limited to twenty). The freshman program is centered about the construction of a residence wherein as many of the fields as possible are involved. At various stages of construction, as each of these fields of work is encountered, a competent tradesman is certified to assist the instructors.

Since the course was launched for the first time this September, only the first-year program is under way at present. It is intended that the second year shall be devoted earnestly to group training, each group devoting the entire year to one restricted field. In the cases of carpentry, plumbing, and wiring, it may be possible to give at least one additional year of training in order to cover more adequately the broad fields into which these crafts have developed.

Besides the teaching of coördination of the various fields, the objectives of the first year are threefold: to allow students to test their interest in their chosen field, to afford the young men the opportunity of working under actual construction conditions, and to give the instructors and the tradesmen of the community a basis for determining the aptitude of the students for the particular trade in which they will specialize during the second year. The contact with the tradesmen on the job is especially valuable, not only for its educational worth but also for the introduction it opens up for the possible placing of the students in the trades upon completion of the course. Part of the program is a field trip at least once a week to some project that is at the same stage of construction as the class project, and these trips promote further student-tradesman contact as well as a broader conception of the work.

The seven periods of the school day at Visalia Junior College are divided for manipulative training, related technical training, aptitude or personality training, and the related academic and business training. Periods one to four are given over to the manipulative training, which is the actual construction of the project as described above; period five is used for the technical related training, which is a study of the theory of why, what, and how for the coming day's manipulative work; periods six and seven are devoted to the related academic and business training that is required to fill out a well-rounded training course for the successful tradesman of tomorrow. Required are such subjects as trade English, trade mathematics, trade drawing, trade psychology, business law, typing, accounting, and so forth. The word "trade" is used as a prefix to these subjects to signify that only the materials in that subject that will be of benefit to the student as a tradesman in administering his business or living his life with the utmost contentment from day to day are taught.

Aptitude and personality training are stressed throughout the seven periods as the subject develops the appropriate opportunity. A definite outline of the desirable character traits of successful tradesmen is kept before the students as the basis for this training.

Students with the following edu-

cational background and character traits are encouraged to enter these classes. First of all, a prerequisite which is desirable and which will be mandatory as the Building Trades Training courses become more firmly developed is a high school mathematics major. Also such effective subjects as typing, accounting, mechanical drawing, and shop will be required. High school training automatically brings the boy to an age (preferably 18 years) which will place him in the field, after his Building Trades training, old enough to be accepted by the contractors.

The student must be seriously minded for his own benefit as a tradesman as well as for the benefit of the classes. Joking or lack of attention on the part of the student would soon discourage the coöperation of the tradesmen and thereby defeat the aims of the school as an institution of practical training. An aptitude and inclination for the work must naturally be shown; otherwise the training period would be a waste of the student's time as well as that of the school and the tradesmen. The wholehearted consent of the parents is also desirable.

On completion of his training the student has conferred upon him the title of Associate in Arts. He will also have instilled into him the conviction that his actual training period for a master craftsman has just begun. A firm foundation has been laid; he knows what the contractor expects of him; he knows the trade names of procedures and materials; he knows why work progresses as it does and what to look for next; he knows why he cannot expect to draw the same salary as a master craftsman a few days after he works on the job. In other words, he enters the field as an asset and not as a detriment to the man for whom he is to work.

With the proper apprentice background, for such fields of the building trades as carpentry, plumbing, and wiring, it takes approximately seven years of diligent, conscientious training to reach the goal of master craftsmanship. What this present plan of procedure will do to the time element of that training period can be determined only by a system of carefully kept records. Let it be emphatically stated here that it is not the objective of Visalia Junior College to attempt to cut down the time of the training period with the possibility of flooding the market. On the contrary a longer period of training will be advocated, if necessary, in order to develop the standards of construction desirable for the building trades.

AFTER what has been said so far, there should be little question in the mind of the reader as to the importance of community approval and coöperation in the successful functioning of such a program.

The coöperation of the high schools of the surrounding communities which supply many of the Visalia Junior College students is an objective towards which the administrators of the program are striving, for they realize that the shops of these schools might well be the source of many carefully selected boys, should the confidence and good will of the instructors of these shops be earned.

In Visalia the people as a whole, when approached on the subject, are primarily interested in two phases: the cost to the taxpayers and the individual benefits to be derived. In both cases approval has been heartily voiced when the extent of Federal and State appropriations as well as the aim for higher standards of building construction are explained.

Organized labor, which is the major representation of the tradesmen in this community, is enthusiastic in its sup-

port. Members of the Visalia Carpenters' Local Union voted to do everything in their power to aid the development of such a training course and released an article to that effect for the local papers. The common plea of this organization is that "Our members are practically all grey-headed men; we need young, intelligent, level-headed men to carry on where we must soon leave off." This attitude holds, not only for the Visalia carpenters' local, but for the majority of the locals throughout the country.

Although a few of the general contractors have been a little reserved in giving their whole-hearted approval, on the grounds that any project built by the students is taking work from the men who are actually in the field, the majority of them are enthusiastically approving, stating that "skilled craftsmen are almost impossible to get hold of now," and "we cannot afford the time or money to train these young men as they should be, due to competition." The subcontractors, such as the electricians, plumbers, and so forth, have expressed unanimously support for the project.

In order to maintain and further develop such general approval, an advisory board has been organized, consisting of representatives from each of the various fields of the building trades. The duties of the board are to counsel and advise the administrators and students of the Junior College on how to proceed to better the conditions of the institution and gain the general approval of the community as a whole.

As evidence of faith and interest, one of the leading lumber yards of the community has offered a site and the lumber materials it handles for erection of a small five-room residence. Subcontractors, including those in the fields of plumbing, electrical, plastering, and concrete, have offered not only their services in assisting with the class instruction in their respective trades but also the materials necessary to complete the job. This residence will require the full school year for its completion, because completion of the project must be regarded as a means of training students and not as an end in itself. Upon completion of the residence by the students it will be sold by the lumber yard, and until then these various contractors must wait to be compensated for the materials involved.

The coöperation extended the Junior College could be found only if there is a real need for such a training course and if the tradesmen themselves recognize that need and are willing to do something about it when given the opportunity.

High-Frequency Education

Reservation by the Federal Communications Commission early this year of twenty-five channels in the ultra-high frequency band for nonprofit educational broadcasting has stimulated many requests from educational groups for use of such channels. New York City has been granted permission to set up a station for broadcasts which school officials hope will reach its entire school population, according to an announcement from the United States Office of Education. Cleveland, Ohio, will operate a high-frequency station this year. A score of other city and county school systems, colleges, and universities are considering making application for station construction permits. One or two radio equipment companies are ready to quote prices on transmitting and receiving apparatus, and the United States Office of Education is gathering information to guide schools in making use of this new educational facility.

Contribution of a Junior College Museum

By HARRY E. TYLER

WHEN a stranger first enters the outside door of the Sacramento Junior College library he realizes that here is an institution that is different. On his right and left are two open doors, and just within them he sees students wandering about in interested groups. On the left is the "Little Gallery" where various exhibits of art are to be found. The open door on the right shows several large rooms containing glass cases of museum material. A bronze plate outside the door indicates that this is the "Lillard Museum." Here is something unique in junior college educational technique.

This is not a dark and dusty accumulation of musty antiques; this is a large and carefully cataloged collection of materials displayed before the eyes of inquiring students. It is a *library* where students may see the evolution of civilization in California and throughout the world as shown to them in the remains that have been excavated and brought to them here. It is a *laboratory* where students may see and work with the materials of ancient civilizations and from this work draw conclusions regarding the trends of our own historical picture.

Because of the prominent location of this museum at the very entrance to the new library in the Sacramento Junior College, the inquiring visitor concludes that here is the personification of an educational philosophy. And he is right, for the Lillard Museum represents an ideal of educational procedure in the mind of Sacramento Junior College's veteran president, Jeremiah B. Lillard.

Not a course itself, but so closely allied to the instructional program of the school is the Lillard Museum of the Sacramento Junior College that it is appropriately included in this symposium devoted to unique courses of California junior colleges. As the present article shows, this unusual museum is in reality a library and a laboratory, an institution at the heart of the learning process. Mr. Tyler writes that it "is using the materials and philosophy of progressive education in such a way as to please the most conservative 'essentialist.'"

Mr. Tyler is dean of counseling and student personnel at the Sacramento Junior College, where he has been since 1928, serving first as instructor in psychology and then as dean of men. He has helped to organize student personnel work in the school and has served as chairman of the Curriculum Committee. At the present time he is president of both the Northern California Junior College Association and the Northern California Guidance Association.

MOST people have hobbies of some kind. With some it is golf or another athletic game; others collect stamps or listen to music. But with President Lillard it has been the collection of museum materials, particularly those relics of past civilization in California. For years he has spent much time and money in the making of his collection. During the past few years he directed scientific excavations of California Indian remains, using junior college students working under the

auspices of the National Youth Administration. All of this work has been done with the precision and care of the expert researcher, and from this labor have come facts and hypotheses regarding Indian civilization.

Very often prominent people who have the collecting of materials as a hobby consider what they have gathered to be their private property and guard it zealously. Frequently such collectors sell their material to the highest bidder and sometimes fortunes are made from this barter in priceless artifacts. But President Lillard has been different. All of the material he has gathered he has donated to the college museum, and all of it is thus made available to students and other visitors for their education.

It is no wonder that when the new library was opened the students at the Sacramento Junior College petitioned the local authorities to call this museum the "Lillard Museum." But the vision of its founder went further than the collection of material. His idea was not to collect and store the relics of the past in inaccessible places. He realized that such collections had value only when they could be placed in such a way that students could see them and learn from them. So, every day that school is in session the doors are open and anyone may come in and look about.

The material in the Lillard Museum is labeled in a descriptive manner. Even the uninitiated in the fields of archeology or anthropology can learn much from a visit here. There are twenty thousand artifacts on display. Most of them are from California, particularly the Sacramento area, but also there are others from various parts of the world. These include the Hopfield collection from New Guinea and the South Western collection from the Museum at Gila Pueblo. In one room are to be seen one hundred and fifty specimens of pottery dating from 700 to 1500 A. D. These specimens are from every continent in the world, as well as from most of the South Sea Islands.

IT is in the study of Indian civilization in the Sacramento area that the greatest contribution has been made to the science of anthropology. The Sacramento Junior College Field Party in archeology, which has been doing research work in this area since 1932, has arranged in the museum the three successive cultures of the California Indian—Early, Transition, and Late. In the Lillard Museum the visitor may go from one display case to the next and note in the modification of the various artifacts the changes in these three cultures. Through these remains the civilization of the early Californians is made to live before the very eyes of the students. The museum also contains examples of Indian art. There are over two hundred specimens of baskets on display, most of which were purchased from the well-known Barr collection by the Sacramento Board of Education.

Space forbids a complete account of all the materials of Indian civilization that are to be found in the museum. This collection has become so much a part of the Sacramento Junior College that other members of the faculty besides Mr. Lillard have contributed to it, notable among them being Anthony G. Zallio and William K. Purves. Other members of the faculty, through their knowledge of geography, geology, zoölogy, and kindred fields, have contributed to making the Lillard Museum a medium of education.

In portraying the development of California civilization the collection does not stop with the closing of the Indian periods. Materials are on display which are representative of the Spanish Era. Likewise the "Days of Forty-nine" and succeeding early American periods are represented in various ways. There are

tools, ornaments, firearms, and household materials from early California. Among these is a beautiful John Rogers statuette. Visitors express great interest in an ancient melodion which at one time was located in the first public school of California. Like all good museums there are ox yokes and goads, which are so typical of the early pioneer period.

Almost every day students and friends of the institution bring new and valuable historical material for the museum. When the library building was planned the west wing was thought to be ample to house the museum, but so rapidly has the material been collected and so generously have friends given to it that the present quarters are entirely inadequate. In the Botany Department is displayed an herbarium containing sixty-five hundred different specimens of plants and nearly five hundred other botanical specimens of odd types of leaves, evidences of diseases, and other botanical phenomena.

The Zoölogy Department has on display as a part of the museum one hundred and fifty preserved specimens in jars, a substantial shell and sponge collection, mounted skeletons of snakes, frogs, birds, and mammals. This department also owns the skins of several hundred mammals, about one hundred of which are mounted and on display.

The Geology Department has one of the most interesting and complete collections in the entire museum. Among its several thousand specimens are the Beardslee collection, which is largely made up of specimens from south of the equator, and the Heizer collection, which came from the State of Nevada. Recently the State of California presented a very large collection of geological specimens from nearly every section of the State. The students in the Sacramento Junior College come from widely separated areas and they have brought valuable material with them, among the most interesting of which is the Hawaiian collection donated by students from Honolulu. Because of the interest in the field of geology the Board of Education has purchased a large number of fine specimens which greatly augments the exhibit.

THIS gives some idea of the material to be found in the Sacramento Junior College Museum. Obviously this is an outstanding educational exhibit, but the unique feature about this museum is not its size nor its completeness. The museum is not merely a collection of material valuable only because of its age or historical significance. Rather, this museum is considered to be a tool in the education of junior college students. It is used as a laboratory in history, in geology, in zoölogy, anatomy, botany, and anthropology.

A library is usually thought of as a place where books are housed. In this larger view it is an educational tool where not only books but other materials of instruction are made easily accessible to students. The open shelves in the Sacramento Junior College Library, where over eighteen thousand volumes are readily available to those in search of educational material, are augmented in the Sacramento Junior College Library by its museum where, just as accessible, are to be found thousands of remnants of bygone civilizations. The original Californian has left his mark there. Those who came after him are likewise made understandable to modern youth by this exhibit. The Sacramento Museum is a unique contribution to junior college education.

Hotel and Restaurant Course In Junior College

By MOZZELLE MILLIKEN

Most unique of all courses offered at the San Francisco Junior College is the work of the Hotel and Restaurant Management Division. The Division, through an agreement with organized labor and with employers, is able to give its students job experience and acquaintance with the problems of management they could not easily receive otherwise. By utilizing successful workers in the field as part-time instructors, the Division furnishes its students a contact with those who actually are doing the work for which these students are preparing themselves. The Division has an agreement with city hotels and restaurants by means of which the graduates of the course each year are absorbed into the industry. The general interest in the work of the Division and the appreciation of the job it is doing have made it a community concern in San Francisco.

Mrs. Milliken, who writes the present article, is a member of the faculty of the Division. She is in charge of guest lectures and conducts the class in hotel advertising and promotion. She is known in San Francisco as advertising and promotion manager of two large hotels.

WEARING freshly issued uniforms, hands scrubbed to immaculate cleanliness, time clock punched as promptly as though they were working on a paid job in industry, 8 o'clock every school morning of the year finds the students in the Hotel and Restaurant Management Division, at San Francisco Junior College, ready for work and instruction.

Continuously from 8 until 1:30 these students, under the alert and experienced eyes of instructors, go about their tasks of planning, ordering, preparing, and serving some three thousand school luncheons to the students and faculties of Galileo High School, Marina Junior High, and the Junior College.

At 1:30, when the average college student has begun to contemplate the end of his academic day, these sturdy, energetic young people are taking off their uniforms, washing their hands, punching the time clock, and pausing briefly before reporting for academic classes at 2 o'clock. In the meanwhile they will already have counted their day's cash receipts, made up their bank deposits, and completed their records of the day's business.

No place for an idler this. No place for a student unable to stand for long hours over ranges and steam tables. And certainly not one for the person unable to remain calm and unhurried as hundreds of hungry school children pass a cafeteria counter.

From 2 until 5:30 these students attend lecture classes covering technical and related technical subjects having to do with their training as future hotel and restaurant managers, operators, or employees. Certainly a full day. Yet, speak to any one of the group now enrolled in this unique vocational course and watch his eyes light up as he tells you that he has never enjoyed any school work as he is enjoying his present program. Remember also that his school work now includes everything

from pot washing to making delicate designs in exquisite cake decoration.

Recently two young boys from this class were walking along Geary Street. Suddenly they both stopped and turned to look in a shop window. The interest with which they were contemplating a display in a confectioner's window could only be understood by someone who knew that these two smartly tailored young lads a few hours previously had been just as smartly turned out in chef's caps and aprons, intently engaged in making French pastries. Delightedly they pointed out examples of pastries which they had just been taught to make and with obvious concern regarded one specimen which they confessed they would not know how to concoct.

These boys happen to be the sons of a well-known hotel man. Some day they expect to take over the business. Not for them will be the bewildering inexperience of the rising young hotel executive who comes up by way of the front office and suddenly finds himself a manager with only the vaguest knowledge of those remote regions known in hotel parlance as "the back of the house." Theirs, after two years spent in the hotel division, will be a thorough acquaintance with food costs and purchasing, of daily menus and size of portions, of the advantages of certain types of kitchen equipment, and of a deep personal understanding of the problems confronting the culinary departments of their hotel. Not even will they be obliged to depend entirely upon another man's knowledge and skill in such a remote region as their meat cutting department, for these boys along with their class have gone every Saturday morning to the ice boxes of one of San Francisco's largest wholesale meat companies, where they have learned from a practiced hand the art of meat cutting and selection and the "reasons why" in this particular skill.

FOR their daily practical laboratory work the students in the Hotel and Restaurant Management Division are divided into two groups, those in the restaurant management class and those in chef training. In each group individual students are assigned to positions, the duties of which correspond as nearly as possible to similar jobs in industry. Assignments are rotated at the end of two week periods so that every member of the class has opportunity to undertake all the duties and responsibilities which might come to him in future work from bus boy to manager.

During his two weeks as "managing steward" the student carries such responsibilities as the hiring of help—this includes selection and hiring of high school student helpers who are paid in script. He must supervise and direct the various department heads in the cafeterias, who are his fellows in class. He has an opportunity to encounter two difficulties, common to each newly appointed steward—first, the almost universal inability to give orders and, second, the chronic tendency to give orders and correction to individual workers instead of through their department heads. Many a mature person first tackling the executive job has much the same difficulties, but most awkward of all is the effort of the young man manager attempting to give an order to a young woman fellow student. Strangely enough the latter has but a minimum of difficulty when the positions are reversed.

Directly in charge of the department heads is the assistant steward, who personally directs the work of the counter attendants, determines the size of portions, and makes contact between kitchen and dining room.

Under the assistant steward are such officers as the head cashier, whose business it is to train the other cashiers in the use of the machines, handling of cash, making up of records, and so on. A special cashier who handles the faculty dining rooms has the added responsibility of okaying checks and credit slips. Work in the faculty cafeteria also calls for a finished technique in handling delicate problems of adjustment and service common to all adult patronage.

Salesmen from competitive firms call regularly and are referred to the student manager. From such contacts the student has opportunity to gain additional knowledge in buying. Always student efforts are guided and supervised, but never obviously so. An occasional error in judgment, however, may prove a more valuable lesson than many hours of lecture and precept and, under the watchful eye of the instructor, these errors can always be corrected without loss to the institution. Just at the present moment one student is having to put a lot of extra thought and effort toward moving a chocolate confection which he bought from a convincing salesman. Nothing wrong with the product of course; it is just that there was no previously developed market when the ambitious young manager decided to introduce an unknown sales item.

Each manager is anxious to make a creditable showing financially during the period of his incumbency, and care must be taken to prevent him from taking short cuts, which not only are not permissible in school but which would prove his undoing later in his own business. Hue and cry on the part of young customers in the cafeteria demanding one day to know, "What's the matter with the milk shakes?" turned out to be the result of an order given by an over-ambitious manager. He had ordered the formula for the milk shakes diluted so that they had only one-half their previous content.

Daily the student purchasing agent and his assistant storekeeper check storeroom stock against their perpetual inventory and against kitchen requisitions for future menus. The technique of storeroom management and inventories is another of the fascinating new skills which the student thus finds himself acquiring.

Right about this time, if any doubt may exist as to individual enthusiasm which these youngsters have for their job, one has but to observe the work of the boy or girl who may currently be assigned to the supposed lowly job of dishroom man or perhaps bus boy. Here may be found examples of sheer delight in the accomplishment of necessary work well done. During recent weeks, the son of one of the best known hotel men in Northern California has been acting as head dishwasher. His reports on his work and his handling of his assistants give adequate promise of the understanding employer which this young man will some day become.

Preceding the hours of food service, in which are engaged the student workers already described, has been the actual preparation of food for the noon meal. This has been taken care of by those in chef training, where students have been working diligently from 8 o'clock, against that moment when the noon rush will begin. Following the routine of reporting for work properly uniformed, these students began by checking their tools and equipment, looking over the day's menus, and checking supplies against copies of previous orders from storeroom and merchant delivery. Then began the actual food preparation, the making of soups and salads, the baking of pastries and breads, the cooking of meats and vegetables.

Following luncheon, each of the student chefs cleans and puts away his tools, prepares and completes his cost sheets, makes up his orders for the following day, and hands to the storeroom his requisitions. Each has his assigned position for the morrow and each a clear picture of the work he is to perform. He has also heard from the instructor a discussion of such mistakes as may have been made during the day, ways of improving, and a complete outline of procedure for the following morning.

CLASSES in English, which come after the student has cleaned up in the cafeteria following the noon meal, stress the terms and phraseology of the hotel and restaurant trade. Concentrated effort is also made by the English instructor to develop in each student a measure of ability as a public speaker, both extemporaneous and prepared, as a means of helping him in the future to take his place in the civic and business life of his community. Special effort is made to train the students to meet strangers, to talk to salesmen, and properly to give telephone orders to purveyors.

Classes in hotel drawing specialize in such matters as floor plans for kitchens and dining rooms, public lounge space, and guest rooms. Engineering instruction features hotel problems of heating, lighting, and ventilation. Types and proper location of equipment are studied, and mathematics becomes a part of the course as it applies directly to these problems.

Restaurant and hotel accounting and food cost accounting are subjects especially stressed in the training program. These subjects are taught by experts in their line who are actually engaged in such work and whose success in this field is outstanding. Students completing these courses will never be in the appalling position of many a hotel man of the present day who is utterly dependent upon his auditing department for interpretation of the inner workings of his business.

At the present time, hotel housekeeping is taught by means of lectures and by demonstrations through the courtesy of several of San Francisco's leading hotels. Summer work, which is required of all students during the vacation period between the first and second years, gives opportunity for further training in this line as well as in all other branches of hotel operation.

A course in front office psychology includes salesmanship of hotel accommodations as well as the proper handling of the many vagaries exhibited by the traveling public.

Hotel law and hotel advertising are included as related technical subjects in the academic work. Each course is presented from the standpoint of the industry in question and covers discussion of fundamental problems which confront the average restaurant and hotel operator.

AVERAGE age of the students now enrolled in the Hotel and Restaurant Division is 20. Eighty per cent are boys; 15 per cent are the sons of hotel men. Enrollment comes from all sections of the State as well as from Utah, Idaho, and British Columbia.

In the two and a half years during which the course has been given, only three students have dropped out before completing the work. Two of these withdrew to take jobs which were being held for them and which could not be kept open until June graduation time. Only one has ever dropped the work from lack of interest.

First graduates of the course, who completed the work last June, were immediately absorbed into industry, even at a period of so-called recession.

Business Education in a Junior College

By L. O. CULP

Several features make the work of the Department of Business Education of the Fullerton Junior College unique. Among them are the two training laboratories which have been set up on a business office plan, the large percentage of graduates of the Department who are placed in business, and the placement and follow-up service conducted by the Department. All of these are described in the present article.

The author of this article is the head of the Department of Business Education at Fullerton Junior College, which position he has held since 1919. For three years prior to that date he had been employed as a teacher of commercial education in the Junior College and in the Fullerton Union High School. He came to California in 1910 as head of the Commercial work in the Anaheim Union High School.

FROM the time that the junior college was established in Fullerton in 1913, work in the field of business education has had an important place in the school's curricula. At first it was little more than a postgraduate high-school course with limited offerings, but with the rapid growth of the college, and with the impetus given business during and following the World War, the work took on added importance. It was at this time that those in charge of the school conceived the idea that a better type of training must be evolved if the students completing terminal courses in business were to secure employment.

One of the early steps in this direction was the calling of numerous conferences with various business groups in the community in order to ascertain, if possible, just what business wanted young employees to know and do. From these conferences it was discovered that while business firms on the one hand knew pretty well what they wanted, on the other hand they knew of no other or better means for supplying their needs than the rather protracted and expensive apprenticeship system. They were, however, in full accord with the idea that it would be a fine and valuable service to business if schools could do something in the way of training that would measurably shorten the apprenticeship period.

Finally, after more than a year in preliminary studies, the administration of the school and of the department launched the present plan, which consists simply of setting up and maintaining a training process designed to bridge, in so far as possible, the gap between the school and the business world.

While the plan was under process of development, it was decided to give it no particular publicity, but to spend at least ten years in experimentation and study, after which time it was felt that something definite would be arrived at. The time alloted for study allowed for the elimination, as the mechanic says, of "the bugs," and now business readily accepts those from the school who can be recommended.

In order to attain the ends desired it was soon discovered that several matters should be undertaken. One was

that someone should be placed in contact with business in order to secure its ideas and to study its needs. Another was that either the school was to set up some sort of coöperative training in conjunction with business institutions, or it must itself provide business-training laboratories wherein actual business might be conducted with actual business activities as training materials. Along with these two matters came that of the type of instructor that should be selected—one who would not only cooperate in the development of the plan contemplated, but who would, through having had actual experience in the business world, be able to contribute to the information being sought.

FROM the first, the head of the department of business education has been gradually relieved of formal classroom work in order to contact business institutions. At the beginning his efforts were with the firms in the immediate school district and vicinity, but in later years his work has been extended to the Los Angeles area which is but twenty-five miles distant. Community business needs are still given consideration, but surveys reveal that local business outlets are not sufficient to absorb all of those who come to the school for business training. At this time, more than 65 per cent of all students who are eligible to be recommended for business positions are placed with concerns outside the immediate district.

It should be stated at this point that the school's representative, and the administration, have in large part selected the type of out-of-community concern with which to have business relations. For the most part these are concerns that have branches in the local community, or in the communities from which the students come, and whose head offices are in Los Angeles. They include all of the public utilities, many leading oil companies, two of the leading chain banks, several chain stores, transportation companies, and so forth.

The decision to adopt the laboratory type of training rather than the cooperative type came about primarily because of the limited opportunities within the community to secure such coöperative outlets and because experimentation proved that better supervision of student output, student characteristics, and student accomplishment could be done in the school laboratory.

The first of the training laboratories to be set up was what is now known as the Directed Business Training office. It includes, at this time, a state-chartered bank which is sponsored by one of the local branch banks, with headquarters in Los Angeles, and an accounting division which keeps the records for all the associated student-body activities and some administrative accounts of the Fullerton Union High School and Junior College. It is to this laboratory that all students who wish placement assistance in the field of bookkeeping and accounting must go for apprenticeship training. Certain prerequisites are set up before a student may be eligible for the Directed Business Training. He must have had at least a year of bookkeeping and accounting in the junior college and have completed satisfactorily associated and related subjects in his field. In the laboratory he receives actual experience in both banking and accounting practices along the lines followed by the concerns with which the school deals most. The work of the division is supervised at all times by two paid and certificated instructors who are experienced auditors. The students do all of the actual bookkeeping and accounting work and the banking under their supervision. The business that flows through this institution exceeds $250,000 a year.

As the years have increased the en-

rollment in the college, and as added demands have been placed upon the school by business institutions, the equipment in the bank and accounting division has been kept up to date. The present banking and accounting laboratory has facilities in the way of room and equipment to accommodate from twenty to twenty-five students each hour of the day. The bank fixtures were provided in part by the sponsoring bank. The bank-posting machines, adding machines, bookkeeping machines, and other machines and fixtures have been purchased by the school. In the accounting division, all work is done upon or with bookkeeping machines, of which the school uses six of the better-known types. The bank has three book-posting machines of a well-known make and, in addition, has the necessary office appliances such as adding machines, typewriters, calculators, check protectors, and so forth, and a safe and vault. The laboratory operates continuously throughout the day, students being assigned work there at such hours as their formal schedule will permit. No student is assigned to less than six hours of work per week; many take more. They receive one unit of credit for each three hours of assigned work.

When the directed-business laboratory was first established, all work in banking, bookkeeping, and secretarial work was included in its training program. In 1930 the facilities of the division had become outgrown, so a separate secretarial-training laboratory was provided. At the present time, this office handles all the laboratory training work for secretaries. There are two full-time instructors at work throughout the day; their duties are mainly those of auditors. The division is supplied with all types of duplicating devices, as well as dictating and transcribing machines. There are facilities to train the same number as in the directed-business training office. Like accounting students, secretaries come and go on the hour, scheduling from six to nine hours per week at their free time between formal class periods.

The requirements, in order that one may take up secretarial-training duties, are necessarily different from those for accounting students. The main differences consist of the skills required. Only students having completed the equivalent of one year of college typing, or two years of high-school typing, with an A or B grade, may be assigned to the training office. The fact that all work done is an actual job and must be commercially acceptable has made this requirement necessary.

The formal class work in the Department of Business Education at Fullerton differs little from that done in other junior colleges except that every instructor is aiming his terminal students toward the job. Each subject is correlated with the final training laboratory and leads as directly as possible to it. Tests of various types are being used in conjunction with class work to determine aptitudes and abilities, and an even more thorough testing program is being considered.

A FEATURE of the Fullerton program that has been mentioned already is its placement program. Placement service and opportunity for employment are open only to those students who have met certain school and departmental requirements. A bulletin setting forth these requirements is placed in the hands of each entering student in order that he may know definitely what he must do in order to secure the services of the placement director. The business firms with which the school deals also know of these requirements and only those persons who have met them are considered.

The plan of the department is to pre-

pare for employment the largest number possible of those who enroll. The percentage of those who qualify is high, but no more so than it would likely be with any other school which practices student selection. Of course the Department of Business Education at Fullerton is not a dumping ground for undesirable students, nor is it a place to which persons unsuited for business may come.

Contacts with the school's business associates are maintained through calls made by the employment director, by advertising bulletins to firms, and through having business representatives as the school's guests. The latter activity has been the most profitable to the department, for from each visitor is secured some suggestion that helps to keep the school alert and up to the minute. The acquaintance also cultivates placement opportunities.

In connection with the placement service, there is an annual follow-up for each student who enters the department. Whether he stays through to completion or withdraws, contact is kept with him for five years after leaving school. Records are kept from these follow-ups which enable the department to check placements, turnover, and other items of value.

SOME of the activities of the Department of Business Education at Fullerton may be considered unique. The two training laboratories are unusual. The thing that makes them unusual is the fact that they are both conducted on the business-office plan rather than the class plan and that each conducts actual business rather than using practice sets. This plan is not, so far as is known, followed by any other school in the nation.

Some things have been done in the school that are out of the ordinary for a school on the college level. Credit is given for penmanship and spelling. Students are given the Ayres test and those who cannot meet the minimum requirements are urged to take two hours of remedial writing for one semester, for which they are given one unit toward graduation. Likewise, it has been found that a knowledge of ordinary arithmetical processes is in demand. Under the title of business mathematics, a semester course is given in simple fundamentals of business arithmetic, with three units of credit. Business English is taught as a part of the work of the Department and is not considered as a part of the English Department curriculum. It is given as English for *business,* as is business correspondence. In connection with this reference to English, beginning with this year an English prerequisite has been set up for all persons who desire to take stenography. Those failing to meet the requirements must defer their stenographic training until such time as they have satisfactorily completed the course in business English.

The many points touched upon are offered as but a glimpse of the work in the Department of Business Education at the Fullerton Junior College. The number of students who have been successfully placed over the past twenty years would indicate the success of the plan under which the Department operates. The Administration has always given whole-hearted support to the Department. The community has provided the best of facilities. The first building to be erected on the new junior college campus in 1936 was the School of Commerce building, designed especially for giving commercial training. It is a two-story, reinforced concrete building of California-Mexican architecture and is modern in every detail. Artificial lighting, acoustical plaster, cork carpets, and air-conditioning, all contribute to the efficiency of the Department.

Preparing Students For the Aviation Industry

By EDWIN A. ROSS

Like many other California Junior colleges, San Diego Junior College has developed a technical course which is peculiarly adapted to the needs and facilities of the local community. How well adapted it is can be seen quite readily from a perusal of the experiences which the students in the course have had, experiences which included assistance in the rebuilding of Corrigan's plane before his famous wrong-way flight. Mr. Ross, who writes this article, is director of the San Diego Technical Institute of Aeronautics. He has had a wide background in school work and in flying. He has a commission in the United States Naval Aviation Detachment and once was department head in a United States Army Motor Transport School and in the Boeing School of Aeronautics, Oakland. At one time he was aeronautical research engineer for the National Advisory Committee for Aeronautics at Langley Field, Virginia.

The San Diego Technical Institute of Aeronautics is a coöperative effort of the City Schools and the State College. This is made possible by the fact that the Junior College, with the exception of shop and related work in aeronautics, is housed at the State College, both being under the direction of Walter R. Hepner, president of the State College and principal of the Junior College.

A SURVEY of conditions in the local aircraft industry, made in San Diego about four years ago, revealed that high executives of the three leading aircraft manufacturers believed that the factories could employ each year two hundred or more graduates of suitable aeronautical courses. Further, it was learned that many high school graduates wish to enter the aviation industry and that quite a high percentage of them are anxious to get the necessary education to facilitate such entry.

After many conferences between representatives of employers, labor, other citizens, and educators—both local and state—it was decided to offer to suitable high school graduates a two-year terminal course in aeronautics mechanics, leading to a diploma in that subject and the Associate of Arts degree.

Hangar space and rooms for lectures, drafting, and other classroom work were rented from the T. C. Ryan Aeronautical Company, located at the municipal airport. Adequate equipment was installed for teaching the highly specialized parts of the several mechanical trades that are necessary in the aircraft industry for both manufacture and maintenance.

Instructors were secured and the work was started in September, 1935.

The form of organization was that of a technical institute of aeronautics qualified for state and federal subsidy. It was started and is maintained as a part of the San Diego city school system under the direction of the local superintendent of schools. It was placed under the direct administration of the principal of the San Diego Junior College, who, it will be remembered is also president of San Diego State College.

The primary objective of this aeronautics course has been to select and train young men capable of becoming

good mechanics, foremen, and junior executives with probabilities of advancement in the aircraft industry.

In order to achieve this main purpose, contributing objectives have been as follows: (1) *Development of good citizenship*—an understanding of our democratic system of government, as compared with other systems, with emphasis on its value to the individual and its relation to the standard of living; a study of labor conditions, abuses, and possibilities; the exertion of a steadying influence in a period characterized by deleterious tangential action; an increase of self-reliance and self-determination; guidance toward fitting harmoniously and effectively into present conditions and industry; and the securing of suitable placement and a follow-up of such placement. (2) *Acquisition of general knowledge of value in aviation*—history of aviation, mathematics, physics, chemistry, English, and hygiene and physical education. (3) *Acquisition of specific knowledge in aviation*—aerodynamics, thermodynamics, and metallurgy. (4) *Development of skills in working on different types of materials, planes, and engines*—acquisition of specific skills in sheet metal, welding, and drafting have been emphasized as offering lines of least resistance into factories at the present time.

A secondary objective of considerable importance has been to provide training for adjustment to other types of employment outside aviation to compensate for fluctuating employment conditions. These other types of employment include those engaged in auto mechanics, sheet metal workers, woodworkers, welders, foremen, inspectors, and executives.

SUBJECTS taught in the San Diego Technical Institute of Aeronautics have followed closely suggestions from executives in the aircraft industry—who have been consulted on all points—and correspond closely to the subjects outlined by the Aircraft Manufacturers' Committee in their report of February 11, 1938.

The following subjects have been taught at the field: airplane construction, airplane engines, aerodynamics, thermodynamics, airplane drafting, engine drafting, sheet metal, welding, airplane design, engine design, metallurgy, instruments, materials of construction, communications, and air law. At the college the following subjects have been taught, many of them adapted especially to the specific needs of aircraft mechanics: physics, mathematics, chemistry, hygiene, physical education, social science survey, industrial economics, English composition, recreational reading, meteorology, navigation, and several electives.

Students have been selected mostly from those about to graduate from local high schools. This has been done by close coöperation of junior college counselors with the principals and counselors of the high schools. It has entailed many conferences and many meetings of interested students. Those admitted fall naturally into the following groups in order of numerical importance.

1. Those deeply interested in aviation but presumably financially unable to take more than a two-year course.
2. Those whose mechanical records and abilities are good and whose temperaments appear suitable but whose academic scholarship records are such as to handicap them in the pursuit of a complete college education.
3. Those who, while probably not more interested in aviation than in other mechanical subjects, believe they see a better opportunity for employment in a field that has continuously developed in spite of general economic conditions. Such have been admitted if it appeared that they had the necessary ability and determination.
4. Those who are anxious above everything else to get into the industry and to earn money as soon as possible. These have been advised to plan on a longer period of education, when finances seemed adequate, but have been

allowed to make their own choice and have been accepted if considered suitable material. It may not be too divergent to state here that nearly all students of this type have secured their diplomas and have then gone on for further education, either with or without an interlude in the aircraft industry.

Of all those accepted 100 per cent had studied algebra, 85 per cent geometry, 40 per cent physics, 31 per cent trigonometry, and 31 per cent chemistry.

There has been no difficulty in placing all graduates at times when the aircraft industry was hiring. Due to local fluctuations on account of finishing certain contracts before tooling up and starting on other contracts, there have sometimes been a few weeks of delay in placing our graduates. But in quite a number of instances, even students who were unable to complete their courses, due to reasons out of their control, have been placed. Such were in unexpected financial difficulty, this being due in several cases to sudden separation of the parents and in a few cases due to the death of one who was furnishing support.

In all cases of placement the truth was given to prospective employers and an attempt was made to place each student where he could make good, due attention being given to both abilities and handicaps in terms of skills and temperament.

An attempt has been made to keep in touch with the progress of all graduates and former students, although this has been difficult as some move away and forget to write. The records of all are good. Some have become foremen and inspectors. As nearly as can be computed from the records and a certain amount of hearsay, 15 per cent of graduates and former students have been lost to the aircraft industry, presumably some permanently and others only temporarily.

FROM September, 1935, to June, 1938, one-half day of the students' time was spent at college and the other half day at the municipal airport. At the college the students attended many interesting events—educational, social, and athletic. At the field they saw Amelia Earhart, Frank Hawks, Howard Hughes, Richard Archbold, Tex Rankin, Earl Ortman, and other famous airmen and airwomen.

They saw Clark Gable and Myrna Loy and Spencer Tracy acting during the filming of "Test Pilot." Mr. Gable came into the hangar and talked with the boys about their work, their purposes and ambitions. They decided he was a regular fellow.

They saw many new and interesting ships which frequently visit San Diego. They observed the launchings, take-offs, alightings, and beachings of the great PBY and XPB2Y–1 flying boats, which are manufactured locally and on which several of the graduates had worked. They helped to build some of the celebrated Ryan planes. They visited on board the great Douglas luxury airliners. They went through the Consolidated Aircraft factory, one of the world's greatest and most modern factories. They visited the shops and hangars of the Naval Air base on North Island. They all received flight experience. Some learned to soar hours at a time in motorless gliders. Twenty-five per cent of the total enrollment at one time or another took flight instruction in motored planes.

They rebuilt Corrigan's ship for long-distance flights and refinished it. They were taken for flights in it by the now famous airman. Although they have heard his plane called a variety of disparaging names, they know that it was probably as good as the Spirit of Saint Louis. Both ship and motor were later designs though somewhat smaller—the motors of the two planes were made

by the same company—and the Curtiss Robin with its Wright J6–5 was a good ship, as its flight proved. When the boys had finished their job and the ship was relicensed by the federal inspector *the compass was in perfect condition.* It was properly compensated with the little bar magnets that look like bi-colored pencil leads. The needle was free and pointing in the right direction when the ship left San Diego. Some of the boys were of Irish descent, but they are not responsible for the "wrong-way" flight except to the extent that they did a good job on the ship.

In September, 1938, a new vocational school was opened in San Diego under the administration of the city school system. It is a four-story concrete building in the heart of the industrial district. The top floor and roof are devoted to aeronautics. The shops have been equipped with the latest type of machines and tools for all kinds of work on planes and engines, for drafting and design, for lectures, demonstrations, blue-printing, and so forth. Ample provision has been made for the teaching of sheet metal, including layout, forming, cutting, making templates, shaping form blocks of wood and of metal, assembly, and riveting. Acetylene welding equipment is extensive and of good quality.

The class which finished its first year last June started this September on the basis of a transitional organization plan. It will do its half-day of trade and related work in the new vocational school, instead of at the airport. The other half-day will be spent at the college in regular college classes, as all special academic courses for aeronautics mechanics students have been discontinued. This has been done primarily to put the students more closely into the college life and more definitely on their own in competition with regular college students, though it does incidentally effect some economies.

THIS entire undertaking has been considered an experiment in an attempt to modernize and streamline a portion of our educational program. It is not known what future form it will take, but the plan at present is to modify the administration in the interests of simplification.

It is planned to give one-year trade preparatory courses at the vocational school, such courses to be comprehensive and general in character. These courses are expected to lead directly into industry. Trade extension courses will also be given to employed aircraft workers. It is expected that employed graduates will avail themselves of the trade extension opportunities.

Although the trade preparatory course is to be a one-year course, it is expected that a student who has completed it and still wishes to go further with his general education, if he is recommended by the vocational school faculty and accepted by the college faculty, will be given the opportunity of earning, by one year of further study, the aeronautics mechanics diploma and the Associate of Arts degree which have been thus far offered to the Technical Institute students. The Technical Institute as such will probably be discontinued, according to these plans for the future, unless there seems to be sufficient opportunity for training and placement of aeronautical draftsmen to warrant its continuance in that field.

Attendance in Public Schools

Approximately 90 per cent of all persons enrolled in school go to public educational institutions.

Steps in Uniting Guidance And Instruction

By FREDERIC T. SHIPP

ONE important aspect of the "changing curriculum" is that found in the increased recognition of the close relationship of guidance and instruction. A large school of pioneer thinkers in this field consider the two as "inseparable complementary parts of the teaching process" and maintain that the teacher must be a "counselor and guide as well as an instructor to his pupils."[1]

The elementary field has been particularly successful in shaping its organization according to this pattern. But in the secondary field, and especially in the senior high schools, the movement is proving slower—the reasons for this are many and cannot be enumerated here. Nevertheless, many attempts are being made by high schools across the country to establish this new relationship and responsibility of teacher to pupil. Numerous experiments are proving successful, particularly in problems centering around the orientation of the first-year pupils.

Schools have sought solutions to the problem through special orientation classes, through the fusion of such courses as English and social studies, through the modification of advisory periods, and in similar efforts. Certain attempts have proved significant while other experiments have failed when they could not be extended beyond the special group to the total class or school.[2] A description of one reasonably successful administrative approach to this problem by a large three-year senior high school (San Jose, California, enrollment 2,600), in an effort to relate guidance, curricular, and extra-curricular activities and services, may be helpful at this point.

A letter from Dr. Harold C. Hand of Stanford offers the best possible introduction to the present article by Mr. Shipp. It reads, "Real progress has been made in San Jose High School along sanely constructive lines. I have been especially intrigued—and pleased—by the fact that none of the too-usual preview ballyhoo was let loose prior to substantial achievement. It is only at my insistence that the rest of us could profit from a knowledge of what has quietly been going on there that Mr. Shipp has written this description and evaluation. It is a story of solid achievement, not a vaguely theoretical armchair pronouncement."

Mr. Shipp is vice-principal of the San Jose High School. Because of his interest in a sane approach to the whole matter of curriculum improvement, he has served as general chairman of the school's Basic Course Committee, whose work is described in the present article. Before going to San Jose, Mr. Shipp was connected with the Y. M. C. A., serving for seven years as National Council Secretary assigned to Korea.

A follow-up on this article will appear in the December "Journal." It shows the manner by which the schedule of classes was adapted to the curricular changes outlined in the present article.

1 See Henry Harap (editor), *The Changing Curriculum*. D. Appleton-Century Company, 1937, page 15.

2 See Charles W. Knudsen, "Enlisting the High School Teachers' Interest in Curriculum Revision," in *The Curriculum Journal*, 8: 7-12, January, 1937, for an account of a successful experiment with a group of ninth grade pupils in a four-year high school.

UNDER appointment by the principal, a committee of fifteen teachers spent six months considering the problems of the first-year students—their needs, interests, and purposes—the implications of the newer philosophy and psychology for the education of these boys and girls, and the teachers' own school situation. Most of the committee had had several years' teaching experience on this grade level. At the conclusion of the study, several assumptions were accepted as basic to a more satisfactory meeting of the needs of the tenth grade student in this particular senior high school:

1. Pupil needs, interests, and purposes should be given greater recognition in the curriculum content and in teacher attitude.

2. More adequate orientation and adjustment to the high school are essential to the welfare of the tenth grade students.

3. Guidance should be a part of the curriculum, not apart from it. All teachers, as well as administrators, have guidance responsibilities.

4. Existing subject fields should be retained, but the content should be made more vital in terms of pupil needs. Wherever possible, coöperative relationships should be established.

5. Each advisory teacher should have her students in a subject class, preferably as a unit, and, if possible, during the hour next to the advisory period.

6. Certain subjects offer more possibilities for a general course for all tenth grade students because of their almost unanimous choice by pupils in previous years.

7. Groupings larger than individual advisory classes, but smaller than the entire grade, are important to proper orientation and socialization.

With the active coöperation of the principal and registrar and based on the above assumptions, the following plan was set up for a "Basic Course" to be required of all tenth grade students—six hundred in all—entering in the fall of 1937:

1. Three subject fields constituted the Basic Course: English, social studies (world history or economic geography), and Science (biology or general physical science).

2. Each Basic Course teacher was to have three classes in her special field, scheduled consecutively if possible. Each pupil was to have the same subject teacher throughout the entire year.

3. Block committees, each consisting of three teachers (one each from their respective and different fields) were to be responsible for three groups of students, totaling approximately 100 pupils, this block to function as a unit whenever possible in subject fields or in advisory periods.

4. Each block of three subjects and three teachers (nine classes) was to be scheduled, in so far as possible, at the same periods, thus affording full opportunity for coöperative activities.

5. Each Basic Course teacher was to have an advisory period (twice weekly) containing approximately 35 students, all members of one of her subject classes.

6. The teacher-adviser was to have primary guidance responsibilities for these students, sharing any common problem with the other teachers within her block, who had these same students in other Basic Course subjects.

7. Each block committee was to have one teacher as chairman for a semester, responsible to the general chairman of the Basic Course.

THIS reorganization, obviously, proposed no radical change. It retained existing subject fields, periods, and teacher assignments. No teacher was made to feel insecure because of pressure to go beyond her particular field, to feel dominated by other teachers, or to be forced to "coöperate" with contrarily-oriented colleagues. It sought primarily to unify the approach to the students through the most logical person, the one who comes closer to them daily—their teacher. It was intended, secondarily, to take the teachers and the students from "where they are" on to more coöperatively evolved relationships and newer methods and materials only *as and when* the need was recognized and the means accepted.[3]

[3] Palo Alto High School has reorganized its English-Social Studies Division on a somewhat similar basis. *Cf.* "Coöperation Rather Than Demoralization," by Dr. Wallace H. Moore, in the *California Journal of Secondary Education*, 13: 384-386, May, 1938.

The year's schedule was arranged as indicated above, with six three-teacher blocks (eighteen teachers) for the Fall Semester, and later four-, two-, and three-teacher blocks (nine teachers) for the smaller group entering at mid-year. Two-teacher blocks were necessary because of the few available science teachers. Segregation and assignment of the new students to their respective classes and blocks were done before each semester by the educational counselor after a full consideration of each student's intelligence, reading ability, curriculum election, vocational objective, junior high school grades, and high school counselor's recommendation. The educational counselor, incidentally, also continued to serve as a general counselor of the Basic Course on educational problems of individual students.

Although retaining the conventional pattern of teacher assignments, subjects, and periods, this arrangement was significant because of certain important factors. Outstanding was the unified approach to the needs of the new students through the scheduling of classes and teachers. Important also during this year were the four major emphases constantly stressed as teachers and pupils worked together in this Basic Course:

1. *Guidance:* Each teacher was impressed by the responsibility of handling the major guidance services of the students in her own advisory group. She also counseled with the other teachers in her block on mutual student and activity problems. Administrative advisers gave assistance whenever necessary.

2. *Experimentation:* As she sought more completely to meet the needs and interests of her students, each Basic Course teacher was urged to take advantage of any opportunity to modify the content of her subject field in the interests of her pupils. Further encouragement was given through the assurance that wherever possible the students would remain with the same subject teacher for an entire year.

3. *Coöperation:* The scheduling of block classes at the same periods afforded unlimited opportunity for correlated activity. Consequently, each block committee was encouraged to coöperate in any and all services and activities affecting the students in their advisory and subject classes. This included a coöperative approach to individual problems, social activities, class projects, subject-matter correlation, and coöperative teaching.

4. *Reading:* Reading tests had been given to all high-ninth students before they entered senior high school. Scores and interpretations for each student were given his teacher-adviser. An effort was made to have all Basic Course teachers become "reading conscious." Special materials, talks, and other assistance were given to blocks, classes, and individuals by reading specialists. Three remedial reading classes were provided at different periods of the day for students desiring to improve their reading ability.

As is likely to happen with any new plan such as this, certain difficulties arose during the year. There was a rather wide variation in the attempts to apply the principles and practices agreed upon at the outset. Major guidance responsibilities were new to many teachers. It required some study and discussion before there came a general realization of the place and opportunity for guidance in the combined subject-advisory classes. Full advantage was not always taken by the teachers of the coöperative opportunities made possible by block scheduling. Sufficient time was lacking for larger committee meetings as well as a uniform free period for members of the individual block committees. Due to certain program conflicts every student was not able to participate in all three Basic Course subjects. Approximately twenty per cent of the students were limited to two subjects or even, in a few cases, to one.

Despite these difficulties, several significant outcomes developed as a result of the year's work, as follows:

1. There was a much more satisfactory orientation and adjustment of a larger number of new students to the school, to their teachers, and to other students.

2. There grew an increased recognition of the importance of guidance as an integral part of the educational pattern. Most teachers took a deep personal interest in their advisory classes, as individuals and as groups. The result was a great improvement in the amount of counseling service given and in the quality as well.

3. With the guidance viewpoint, there developed a much closer relationship between teachers and pupils within subject and advisory classes, blocks, and the entire class.

4. Out of this came an enlarged concept of the function of the advisory period. It became something more than a passive period—an active period for counseling, citizenship, leadership, orientation, programs.

5. There was a larger sharing of activity by groups within each block and throughout the entire grade. Such coöperation made for a higher morale and better spirit within the class as a whole.

6. Teachers enjoyed more subject class freedom, having the same pupils and classes for the entire year. There was less pressure to "prepare" students for the next semester and more effort to make the content meaningful in the students' lives.

7. Considerable coöperative and correlated activities developed within classes of the same subject and between different subjects within the block. The three-class programing offered maximum opportunity for vertical as well as horizontal correlation and minimum interference with the rest of the school. There was greater appreciation of the contributions of other subject fields and of other teachers.

8. The entire Basic Course committee gave greater recognition to the importance of speed and comprehension in reading, both as a general need and in specific subject fields.

9. There was a definite attempt by several teachers to reshape the content of their subject offerings. The science course was considerably modified during the year in functional terms. There was a large amount of correlation between English and social studies, especially in classes for students of more limited ability.

THIS fall when school took up, there was a group of experienced Basic Course teachers (twenty-one for the fall semester class of 700 new students) in seven blocks, entering upon the second year of a practical approach to the problems of first-year students. There has been a 100 per cent scheduling of students with the teacher who is also their class adviser. There is one full "blocking" of four subjects, through the inclusion of three Spanish classes with the three Basic Course subjects. There is a merging by the science teachers themselves of the traditional biology and general physical science into a general science course based on the needs of the tenth grade student. There is a closer welding of economic geography and world history, with an interchange of emphasis in terms of common cultural problems. There is a greater realization of the functional values of English within the class itself and in relationship to other subject fields. Through it all is a growing conception of the coöperative possibilities within the blocks of subject matter, periods, activities—both "curricular" and "extra-curricular"—teaching, and guidance. All this is in the service of the students as personalities, with interests, purposes, and problems to be met.

A Remedial Mathematics Program

By BENJAMIN H. NEIDEN

The reader of this article will surely agree with Edgar E. Muller, county superintendent of schools in Alameda County and formerly principal in the junior high school where the author of this article teaches, that Mr. Neiden "has something worth sharing with the teachers who are interested in overcoming pupil weakness in the subject of arithmetic."

Mr. Neiden is a teacher in the Westlake Junior High School, Oakland. During the three years that he has been there, he has taught all grades of arithmetic in addition to several remedial classes. At the present time he has two remedial arithmetic classes, one in the seventh grade and one in the ninth. For the past two years he has been a member of the Oakland Mathematics Council which is engaged in revising the arithmetic curriculum in the junior high schools of Oakland.

A REMEDIAL mathematics program has been set up in Westlake Junior High School, Oakland, designed to help several different kinds of students: (1) those who missed mathematics due to excessive absence or moving around, (2) those who wish a general review preparatory to taking algebra or business mathematics, and (3) those who have weaknesses in mathematics and who wish to eliminate them before continuing with the regular class work. These remedial mathematics classes occur at three levels of the Junior High School—seventh, eighth, and ninth grades—relieving the regular classes and classroom teachers of the burden of "carrying" students who are weak in arithmetic and who are constantly requiring special attention.

The classes are small—about twenty children—*and the instruction is given individually.* Each student progresses *at his own rate,* free from the embarrassment of keeping up with the class if he is slow or having too little to keep him occupied if he is quick.

The work includes a thorough review of all fundamentals of arithmetic and as complete an understanding of problems as each child can master. The period is divided into two parts. The first ten minutes are devoted to improvement of fundamentals through written tests and oral reviews. The remainder of the period is given over to the use of fundamentals and the technique of problem solving.

A full-page record[1] of each individual's daily progress is kept. All papers submitted are retained and filed for future reference. At given intervals the papers are examined and inventoried to note whether there has been an improvement in light of the early diagnosis of the child's arithmetic background.

Since this type of class is to a large extent made up of individuals given to inferiority complexes or phobias toward arithmetic, pupils who have been in a nervous tension or lethargy in the regular arithmetic classes, the first job

[1] Because constant reference will be made to the record book, a typical page of a remedial class record book is submitted (Table 1) and should be examined carefully for an understanding of how the system is effected. This book gives a day-to-day picture of the progress of each child. The clerical work will be shown not to be difficult or burdensome and is of immense value to the child and the teacher.

of the instructor is to alleviate this adverse psychological condition. *The teacher must make clear to the children that there is nothing to be ashamed of in being placed in a remedial class.*

THE first task before effective teaching on the individual instruction plan begins is to try to locate the specific source and nature of the individual's deficiencies in arithmetic and to analyze where possible the mental processes of pupils in working examples which are causing difficulty. An examination of the general level of the pupils' ability in arithmetic and a general diagnosis of their common types of errors, habits of work, and faulty procedures is now in order. As the teacher becomes more thoroughly acquainted with the individual, closer and more specific analysis of difficulties takes place.

By giving the pupils standard test forms such as the New Stanford Arithmetic Tests, some indication of the individual's achievement in computation and problem solving and his arithmetic age may be ascertained. The date the test is given, computation and problem solving scores, and arithmetic ages for each pupil are recorded in the diagnosis column of the individual's special record sheet (see Table 1). At regular intervals of about six to ten weeks alternate forms of these standard tests may be utilized for checking in an objective manner the improvement of each child.

Inventory tests—standard survey tests, or scales, or informal tests which the teacher can prepare—should be given to the class for the further aid they will give the teacher in determining the general level of the pupil's ability in arithmetic. *The important point in the diagnosis, however, is not the scoring of right and wrong problems and the determination of computational scores, reasoning scores, and arithmetic ages, but a thorough search for cause of errors in computation and problem solving.* The "why" of the mistakes once analyzed, it is comparatively simple to apply remedial measures to an individual's particular idiosyncrasies in arithmetic.

Mistakes which occur consistently in a process should be analyzed and noted in the diagnosis column of the record sheet. For example: Table 1 shows a weakness, for that particular individual, in the multiplication of fractions problem (which is characteristic of him in all problems of this type) where he has inverted the multiplicand—$3/5 \times 2 = 3/5 \times 1/2 = 3/10$. In the subtraction of fractions this same pupil, we see by Table 1, has a borrowing weakness consistent throughout the diagnosis where he forgets he has borrowed one digit from 31: $31\,1/4 - 15\,1/3 = 16\,11/12$. Another child in doing a multiplication of fractions problem, $6/7 \times 2/3 = 8/10$, reveals a characteristic weakness of adding the numerators and denominators.[2]

After this general diagnosis has been made for each pupil the teacher is ready for a personal conference with him. He may be safely informed of his computation and reasoning scores—he will be interested in comparing his first scores with succeeding test scores, but his arithmetic age and grade placement should not be shown to him. His record sheet should be examined by him and the type of errors he is making should be pointed out to him. Where possible

[2] In a general way these are types of errors which may be specifically diagnosed. For more extensive descriptions of the skills and difficulties involved in the fundamental operations of whole numbers, fractions, decimals, and percentage—as well as enlightening case studies, hints on the use of tests, bibliographies of literature relative to remedial mathematics, *et cetera*—it is suggested that Leo J. Brueckner's *Diagnostic and Remedial Teaching in Arithmetic* (The John C. Winston Company, 1930, 341 pages) be read. This book is heartily recommended, too, for its valuable suggestions for psychological diagnosis of arithmetical deficiencies through written work and oral conferences.

TABLE 1.—*Part of a Typical Record Page of a Student in Remedial Mathematics*

Date	No. of Test	Type of Test	Score	Problem Solving State Series Test	*Diagnosis of Weakness*
2/25					New Stanford Arithmetic Test
2/28	1	Addition	1		Date 2/27/38 5/6/38
3/1	7	Multiplication	1	Pages 1 and 2 Cost of Education	Age 14 14–3 Problem solving 75 81 Competition 72 92 Total average 74 86
3/2	12	Subtraction	2		
3/7	12	Subtraction	0		1. $\begin{array}{r} 1000 \\ -\ 475 \\ \hline 675 \end{array}$ Careless or borrowing weakness?
3/8	16	Division	Incomplete	Pages 3 and 4 Junior High School problems	2. $\begin{array}{r} 237 \\ \hline 37)85359 \end{array}$ Zero weakness in division.
3/9	16	Division	0		
3/10	21	Change fractions	Incomplete	Page 32 Athletic problems	3. $\begin{array}{r} 3.7 \\ \hline 3)14.7 \end{array}$ Carelessness or tables?
3/11	21	Change fractions	1		
3/14	26	Change fractions	Incomplete		4. $\frac{6}{9} = \frac{3}{4}$ Needs practice in reducing fractions.
3/17	26	Change fractions	1		
3/18	32	Addition of fractions	5		5. $\frac{5}{6} = \frac{\ }{27}$ Changing denominators to least common denominator.
3/21	32	Addition of fractions	2		
3/22	33	Addition of fractions	1	Addition and stubtraction of fractions O. K.	6. $31\frac{1}{4} = 31\frac{3}{12} = 31\frac{15}{12}$
3/23	34	Addition of fractions	0		$-15\frac{1}{3} = 15\frac{4}{12} = 15\frac{4}{15}$
3/24	35	Addition of fractions	1		$16\frac{11}{12}$
3/25	36	Subtraction of fractions	3	Page 38 Multiplication of fractions 31 wrong	Forgets to take 1 off 31 when borrowing.
3/28	37	Subtraction of fractions	1		
3/29	38	Subtraction of fractions	0	Page 38 Multiplication of fractions 14 wrong	7. Multiplication of fractions $\frac{3}{5} \times 2 =$
3/30	42	Subtraction of fractions	8?		
3/31	39	Multiplication of fractions	Incomplete	Multiplication of fractions 5 wrong	$\frac{3}{5} \times \frac{1}{2}$ $\frac{3}{10}$ Inverted the multiplicand.
4/1	39	Multiplication of fractions	Incomplete		

the correction may be made clear to the pupil then and there, and practice work may be assigned which will quickly remedy faulty mechanical habits; where understanding and correction of a problem is contingent on more basic material, the explanation may be reserved until the pupil is ready. It is now a simple matter to plan the remedial work for him.

THE first ten minutes of the period are devoted strictly to work on fundamental operations. Improvement is sought in accuracy and speed. Each child receives a practice book[3] for fundamentals. The practice work is arranged as follows:[4]

1. First an inventory test is taken, say, in addition, the problems being arranged on a scale from simple to more complex. If the pupil passes the test with not more than one mistake, his addition appears strong enough, and the next day he proceeds to take an inventory test on multiplication.

2. Should the pupil reveal a weakness in addition, he is required to do specific practice tests in addition ranging from simple combinations to more complex addition until he has demonstrated that he can handle the process efficiently. During this ten-minute interval when all the pupils are busy with their daily tests on fundamentals, the teacher may call individuals to his desk for an oral conference. If the pupil's addition is weak, he is required to do oral addition in order that the teacher may check his thinking processes and diagnose his trouble—it may be a "carrying" weakness, counting with fingers, not knowing simple combinations, et cetera.

3. The form and neatness of papers are essential. At the right-hand corner the pupil places his name (last name first for easy alphabetization of papers), date, test number, and score—number wrong, or incomplete.[5] This prescribed form must be followed exactly since it makes for easy recording and filing of papers.

4. The pupils are taught how to put their work down economically, how to check their answers, and are impressed with the idea that honesty is absolutely necessary if they are to progress. In a class of this type, small, individually taught, the individual finds himself free from the necessity of having to keep up with the class and usually grades himself fairly.

5. A reliable monitor is appointed whose duty it is to pass paper for these practice tests immediately. The moment the children come into the room they go to work. There is no wasted time.

6. When time is called by the monitor, the papers are passed forward, collected and alphabetized, and placed upon the instructor's desk prepared for quick and easy recording. To record these tests daily on the student's record sheet is a matter of but a few minutes and serves as a daily check on each individual's progress. If for some reason the test is unsatisfactory—perhaps the form is not exact, or the pupil has failed the same test repeatedly—a memorandum is made of this, and the first thing the next day during the ten-minute test period, the pupil may be called up for conference regarding his daily test.

AFTER the ten-minute daily tests on fundamentals, the students busy themselves with their individual problems. A textbook[6] is the basis of the work, the work being assigned on a contract plan. The material is mainly in the nature of problems beginning with simple integers involving the fundamental operations, through fractions, decimals, percentage, linear, square, and cubic measure, and so forth, *as far as the child can go*. For a problem set to be complete, all the problems which are incorrect must be corrected and under-

[3] The *Instructional Tests in Arithmetic*, by Raleigh Schorling, J. R. Clark, and M. A. Potter (World Book Company, 1928), are adjusted for pupils of varying ability and give satisfaction because they incorporate inventory tests, practice tests, diagnostic tests, remedial material, norms, and answers under one cover. The tests are designed for teaching purposes. Through a systematic use of them, pupils will improve in computation.

[4] The plan presented here does not adhere strictly to the plan offered in the *Instructional Tests in Arithmetic*.

[5] Students are required to do and grade their test in the ten-minute period. If a pupil is unable to finish both the problems and the checking, he places the word "incomplete" in the scoring section. Incomplete inventory tests indicate, perhaps, slowness or insufficient acquaintance with a process and require that practice tests be taken in the process which was incomplete.

[6] *Triangle Arithmetics*, by Leo J. Brueckner, C. J. Anderson, G. O. Banting, and Elda L. Merton, The John C. Winston Company, 1928 (Grade 7, 256 + 14 pages; Grade 8, 260 + 16 pages).

TABLE 2.—*Improvement in a Ninth Grade Remedial Mathematics Class as Shown by the New Stanford Arithmetic Tests*

Name	Date of N. S. A. T.	I. Q.	M. A.	C. A.	Arithmetic Age	Arithmetic Reasoning	Arithmetic Composition	Total Av. of A. R., A. C.
Charles, A.	9/3/37	90	13-5	14-6	15-11	90	113	102
	1/7/38			14-10	16-10	104	113	109
Crowell, B.	9/3/37	110	15-10	13-11	12-6	88	72	80
	1/7/38			14-3	14-4	94	90	92
Harrer, M.	9/3/37			14-7	14-8	93	94	94
	1/7/38			14-11	15-0	89	103	96
Lewis, F.	9/3/37	89	13-8	15-0	14-6	88	98	93
	1/7/38			15-4	15-11	98	106	102
Pole, W.	9/3/37			14-2	14-6	88	98	93
	1/7/38			14-6	15-9	89	113	101
Prowd, L.	9/3/37	79	11-11	14-9	10-6	53	61	57
	1/7/38			15-1	11-1	71	60	66
Short, D.	9/3/37	77	11-10	15-0	12-10	85	81	83
	1/7/38			15-4	13-7	89	86	88
Towner, S.	9/3/37	102	15-4	14-9	12-0	81	72	76
	1/7/38			15-1	13-0	81	86	83

stood. Then and then only may the child pass on to his new assignment.

In order to carry on this individual instruction plan, where each child is doing something different and each proceeds at his own rate, the class is *organized* carefully. Since the class does not contain more than twenty pupils, the ordinary classroom has more than enough seats to organize the class as follows:

1. One row of seats is left vacant to be filled by pupils who desire to confer with the teacher relative to any phase of their work—correction of problems, a new assignment, examination of records, explanation of a problem, and so forth.

2. As his turn comes, the pupil is called upon and occupies a vacant chair placed at the teacher's desk. All the teaching is done here at the desk or at the board.

3. The pupils are arranged in groups of two, three, four, or five, depending upon their respective abilities or weaknesses. Between each of the groups are vacant seats separating them as much as possible. Sometimes it is economical for the teacher to explain a mistake or problem which pertains to all the students of a group, and this arrangement facilitates group teaching when it seems advisable.

The most important phase of this system is that all the papers are graded together with the pupil. Mistakes and corrections are noted immediately while the material is fresh in the student's mind and he is interested. Nothing is passed over until it is well understood; even the simplest of questions are asked by the pupils without fear of embarrassment or ridicule from classmates.

Here, too, in this phase of the work the pupils are taught to check their answers honestly. If their answer does not agree with the book's, they are required to go over their work and try to find out why. If they find their mistakes alone, it is satisfying. If they are unable to locate their error, they fill the "conference row" and await their turn. There is no "padding" of problems here because the students become sincerely interested in understanding their work;

they have been made to realize that anything not understood must be made clear, and they can get personal help free from embarrassment.

If the teacher is thoroughly acquainted with the textbook, then checking the work of the problems and the answers is a matter of seconds. Errors are readily detected and teacher-pupil discussion follows. Leading questions, explanations, and so forth, bring the desired results.

In order to effect this plan of organization the pupils must be impressed with the idea that they are required to work while waiting their turn in the "conference row." No loafing or "visiting" is permitted. It can be seen that the traffic in the conference row may become congested, with the temptation of wasting one's time ever present. The pupils must learn to busy themselves with reviewing previous contracts or fundamentals, or will take practice tests in the practice book preparatory for the next day's work. The penalty for not trying to improve oneself while waiting in line is no help from the teacher until the teacher is satisfied that the individual has demonstrated his desire to keep himself busy while waiting.

All problem sets turned in are recorded (see Table 1) and filed away for future reference. At intervals of four to six weeks it is interesting to inventory each pupil's set and compare the progress made in quality and appearance.

THE question may arise in some minds—isn't the clerical work attached to such a plan of teaching excessive? No—for two reasons: (1) All the grading of papers is done in class with the child; (2) there is no preparation to make if the teacher knows his text and material—the planning is made between teacher and pupil in class. The filing of the daily tests requires but five to ten minutes. The biggest part of the work of organization comes during the first weeks when the diagnostic tests are being administered and the children are learning how the system operates.

Ninth grade students with normal or above normal intelligence who have been in the remedial class for a semester and who have not only eliminated their weaknesses in arithmetic but who have brought their achievement level in arithmetic above standard may be retained in the class as teaching assistants. They have come up through the ranks, so to speak, and are acquainted with the system of class organization and the instructor's methods of teaching. By working with slow students—reviewing tables, drilling in the fundamental operations, and so forth—they make a valuable contribution to the class. This is in no way an imposition upon these children, for they continue with their advanced arithmetic preparatory for algebra, learn how to handle children, and build more confidence in themselves. They enjoy this sort of assistance and are invaluable in helping their classmates.

Grading of students in the class depends upon their individual improvement regardless of the progress of others in the class. In a class made up of children varying so greatly in ability and achievement levels, it would be grossly unfair to grade competitively. Regardless of the use of standard tests to measure gain in an objective way, the subjective element of the opinion of the teacher who is in daily contact with the pupils weighs heavily in the final determination of grades for a remedial class.

CAN we justify this remedial mathematics program as set forth here in terms of the results achieved?

To evaluate the results obtained in

this remedial mathematics setup, let us examine the scores of a few pupils on two different forms of the New Stanford Arithmetic Tests given within a short time of each other and as pictured by Table 2. Generally speaking, in every case the total averages of arithmetic reasoning and computational scores and the corresponding arithmetic ages show an increase.

Standard tests, however, often denote right and wrong only and do not show how method or skill has been mastered. By no means do they indicate the extent of gain or progress in arithmetical reasoning or computational skills that these children make in a remedial arithmetic class.

To understand fully the true achievement and progress of the pupils listed in Table 2, one necessarily must have known and studied them personally, by means of their daily oral and written work, their changed attitudes, and by a comprehensive study and understanding of their individual record sheets—in short, by knowing "what they came in with" and "what they went out with." To illustrate the true achievement made by the pupils whose scores appear in Table 2, let us turn briefly to a more detailed record of some of them:

A. Charles is a girl who wishes to take algebra but has been advised by her counselor and mathematics instructors to postpone taking it until her tenth year. She has been advised to enroll in remedial mathematics for a thorough review, especially concentrating on problem solving. She has a low normal intelligence quotient of 90 (consult Figure 2 for chart form of all statistics quoted), a mental age of 13–5—over a full year below her chronological age of 14–6. She tested 15–11 in her arithmetic age but was quite weak in reasoning score as compared to her computational ability. After she had spent several weeks of drill and practice in the technique and handling of problems, her score in problem solving jumped 14 points, raising her arithmetic age to 16–10, a gain of over eleven months. This girl will certainly have a better chance to be successful in algebra because of the thorough review obtained in this remedial class.

B. Crowell has had considerable difficulty in mathematics, receiving low grades in her regular class work. Her fundamental background has been so weak that in the regular mathematics classes, no matter how hard she tried, she had always lagged behind. She is quite slow and shy; she needed individual attention which the regular class could not grant her. Her intelligence quotient of 110 and her mental age of 15–10 would lead us to believe that she should do at least normal work in arithmetic. Her arithmetic age of 12–6, however, was almost a full year below even her chronological age of 13–11, and approximately three years below her mental age. In one semester of remedial mathematics, she improved so remarkably in reasoning and computational power that she gained almost two years in arithmetic age. Certainly these results speak for themselves.

D. Short, with an intelligence quotient of 77, a dull boy of fifteen years of age at the time of his first test, and with an arithmetic age of 12–10, over two years below his chronological age, climbed to an arithmetic age of 13–7, gaining several months on his chronological age and making significant strides in reasoning and computational power. The remedial set-up has been of great value to this boy. He has been able to proceed at his own rate of speed by receiving the individual attention he needed. The regular ninth-grade mathematics courses (algebra and business arithmetic), would have been beyond his level. After this thorough-going review, perhaps, he can take business arithmetic in high school with some profit.

IN conclusion, let it be understood that the remedial program outlined briefly in this article does not purport to be the last word, or the only way of teaching remedial mathematics. It is not meant to be a rigid or inflexible plan; it can be modified to meet circumstances and can be adjusted to the personalities of the teacher and the pupils. If some practical suggestions to teachers can be gained from it, and if the case for remedial mathematics has been substantiated, the purpose of this paper has been fulfilled.

School and Community Unite For Better Health

By LYLE C. MARTIN

IDEALLY located thirty-seven miles from the heart of Metropolitan Los Angeles, Claremont High School has a healthful environment typical of that described by all Southern California national advertising with the blooming orange groves in the foreground and snow-capped mountains in the background. But despite its natural advantages Claremont, like all other schools, has a health problem to face. And in a city where the population is less than three thousand, and where the junior-senior high school population is only 290, a health program is of necessity limited as to funds. But if there be proper coördination of school, city, community, and county health agencies, such a program is not limited necessarily as to functions.

Accepting the standards set up by the Public Health Nurses, which were prepared by the Education Committee of the National Organization for Public Health Nursing, we have attempted to meet these standards and handle our health problems in Claremont High School by coördinating the health agencies of both the school and community. The following brief outline of the primary aim and objectives to be realized has been set up for guidance purposes

I. Primary Aim: To help secure maximum health for every school child through his own intelligent coöperation and that of all others who control his environment.

II. Objectives:

1. Physical examination every two years.
   - *a.* Correction and prevention of defects.
   - *b.* Parent conferences.
2. Inspection of pupils returning after absence due to illness.
3. Inspection for control and prevention of communicable disease and exclusion as indicated.
4. Teaching of healthful living to the students.
5. First aid for emergencies and minor injuries.
6. Health supervision of school personnel as needed.
7. Maintenance of hygiene and sanitation of the school plant.
8. Coöperation with teachers for educational health opportunities.
9. Promotion of community health agencies with the school.
   - *a.* Public School Council.
   - *b.* Coördinating Council.
   - *c.* Medical Executive Committee.
   - *d.* Large Medical Committee.
   - *e.* Los Angeles County Medical Aid.

III. Enlistment of Parents in School Health Program:

1. Nurse's visit to homes.
2. Parents' visit to school.
3. Public School Council's active support and participation in the health program.

IV. Coöperation of Health Program With Physical Education Program and Other School Departments: Attention

This article by Mr. Martin, instructor in boys' physical education at Claremont High School, is adapted from a report submitted to persons cooperating in the Claremont health program. Says C. C. Trillingham, assistant superintendent of Los Angeles County, "The Claremont program is so far ahead of most of the secondary situations that it should be of more than usual interest to many secondary administrators and health workers."

must be given to teaching health in connection with the usual daily subjects.

V. Coördinating Coöperative Community Agencies:

1. Use of local doctors and dentists, oculists and aurists in the planning and execution of examinations.
2. Coöperation with social service agencies.
3. Coöperation with service clubs.
4. Membership in public health, educational, professional, and civic organizations.

An effort to attain the above objectives on the limited budget of a small high school seemed at first to be impossible. After somewhat careful planning, however, they have been largely achieved in Claremont High School during the past two years by coördinating the health agencies of the community, county, and school. One feature singular to the Claremont situation is the unified school district with jurisdiction over kindergarten, elementary, and high schools under one board and one superintendent. From the administrative angle, this has its distinct advantages in the development of full community coöperation in the interests of our health program.

THE doctors, dentists, oculists, and aurists were banded together in a large medical committee, as a first step toward the attainment of our health objectives. From this group a smaller executive committee was formed to act directly with the school authorities in the formulation of health policies as well as taking an active part in the physical examinations given the students.

The Los Angeles County Health Department, in addition to sending a representative to attend the large medical committee, has taken an active part in our health program. Through their assistance, the audiometer test is given every two years, and they also take care of the administration of vaccinations and toxoids given from time to time. Last year the Mantoux Tuberculosis Program was carried on in our school with great success.

The social agencies of the community have contributed directly to the Claremont Health Program. The service clubs have furnished free milk, paid for tonsillectomies, glasses, and teeth repair of the underprivileged. The Coördinating Council has provided aid in regard to helping the boy or girl who might otherwise be delinquent. The Public School Council—which is the Parent-Teacher Association in the average community—has furnished funds to help finance the physical corrections of the needy. In cases where other sources are insufficient, a revolving fund created by teacher contributions has been utilized. The borrowers from this fund are asked to pay back at their convenience in order to maintain both the fund and their self-respect.

The local doctors, dentists, oculists, and aurists have given their services gratuitously for all ear, eye, nose, and throat examinations. Two Los Angeles County doctors, a woman for the girls and a man for the boys, were employed for the other examinations by School Board funds.

Within the school itself everything possible has been done to use all the services of the staff. An example in point was the coördinating of the following people and teachers for the "Alcohol and Narcotics" course given under the direction of the Physical Education Department. The city physician was called in to explain the "drunk driver" situation. The biology teacher, the chemistry teacher, the school nurse, and the home economics teacher were all asked to discuss the effect of alcohol and narcotics as interpreted by their specialized knowledge in their own

fields. Sex education has been attempted by the use of motion picture films approved by the Los Angeles County Health Department, professional lecturers, and class discussions both in school and in adult education courses at night school for parents.

The Physical Education Department has furthered the health of the individual students by doing the following: it makes foot inspections and offers treatment for athlete's foot; heights and weights are checked regularly with arrangements made for mid-morning milk or orange juice for those underweight; the sanitation of the showers and dressing room is closely watched; first aid is administered whenever needed; safety rules for sports are utilized for the student's protection; physical examinations are required of all boys participating in sports; health rules in regard to the common cold and control of communicable diseases have been drawn up and posted for the student's part in the limited or full-time physical education program; health films are shown throughout the year both in silent and talking form; a doctor is in attendance at all home football games; a physical examination card-file is maintained; a standardized physical check-up card is used showing the doctor's recommendations as to activities for students returning to school after a long illness or medical operation.

HOW successfully the health program of the Claremont High School has been accepted by the community as a whole can be seen by the number of corrections and follow-ups after our physical examinations last year. By a reliable check-up it was discovered that corrections had been made of 90 per cent of the defects discovered as a result of the examinations.

By coördinating school and community agencies, even the small high school like Claremont can successfully promote a program for better health for its students. The success of our own program has come from continued cooperative efforts of all the agencies of the community interested in children and in health. Parents, patrons, teachers, and pupils all have taken an active and interested part in the program and have all shared in making possible its success.

Two New Journalism Texts

Now that journalism has been generally accepted as a subject in the secondary school curriculum, new texts appear with considerable regularity. The newest one of these on the high school level and the first one for use in the junior high school are listed below. These two books, which have just been received from the publishers, are as follows:

Journalism and the School Paper, by DeWitt C. Reddick. D. C. Heath and Company, 1938. Price, $1.48; 341 pages.

The emphasis in this high school journalism text is upon the types of writing which are characteristic of school papers, the idea being to adapt the writing in the school paper to the conditions under which it appears rather than to make it an imitation of the style to be found in the professional press.

The Student Editor, by James W. Mann. The Macmillan Company, 1938; 149 pages.

A guidebook of practical assistance in the editing of school papers or magazines for the junior high school. Its use requires no previous training in the techniques of journalism, and it is planned for teachers and students engaged in publishing school materials of various kinds in an ordinary class situation.

Correlating Science and The Bible

By WILLIAM C. MORRISON

Mr. Morrison is qualified to write on this subject, the correlation of science and the Bible, for he is a science teacher and he has published several articles on the general topics of religion and education. In the present article he traces the evolution of the relationship between science and religion, arriving at the conclusion that the time has come when scientists and theologians can agree on broad general principles and, therefore, that we have arrived at a stage where the Bible can be presented to the youth of America through the public schools.

Mr. Morrison has taught biology and chemistry at Beverly Hills High School for nine years. Prior to that he taught agriculture at Marysville Union High School. For twelve summers he has been director of Los Angeles municipal camps and of Los Angeles Boy Scout camps.

THERE are two great products of the human mind, religion and science. Both have evolved from ancient and simple beginnings to their present complications. Religion began as a form of magic, later evolving into relationship between persons and gods, until at present we find religion dealing with theology and ethics. Science began as simple observation, followed by elementary deduction, until it evolved into an indescribable amount of intricate, exact, inter-related knowledge based either upon fact or seemingly irrefutable theory. It is probably safe to say that both religion and science are of human origin.

With any two great ideas there is bound to be some dispute, and the more meager the intelligence of the followers of each idea the greater the dispute. For instance, dwellers in arid regions ascribed the cause of rains entirely to the will of the rain gods. The "magi," being wiser than the masses, encouraged this belief and through the medium of furs, maidens, wampum, and the law of averages induced rain to fall. The power of the magi grew. The permanence of this power was secured through the simple process of keeping the masses ignorant. But since evolution means simply a constant, progressive, successful attempt toward greater self-preservation, there were bound to be some men who sought for the natural cause of aridity and the natural cause of rainfall. Such a search was evidently the result of doubt in the minds of those who sought for a more scientific explanation of natural phenomena. Obviously these two ideas clashed, and the cause of the clash was the self-preservation of two fields of thought. The power of the magi was threatened. Since the magi were strong, since the people were ignorant and afraid, since the opponents were few in number, we can readily see how these new ideas and their makers at first were easily exterminated. For thousands of years our ancestry yielded to the tyranny of fear and the suppression of reason.

In more recent times we find the same conflict, but with more encouraging results. Although Galileo was exiled because he said the earth was round, and Martin Luther called Copernicus a fool and a heretic because his now accepted

theory of the solar system conflicted with Joshua's idea, and Roger Bacon was imprisoned fourteen years because his studies of refraction of light revealed the true cause of the rainbow—although these things had happened, we can rejoice in the fact that *we do know about these men.* Furthermore, the magi no longer try to exterminate, but instead they attempt to correlate the philosophy of religion with scientific factual evidence. This forward step is due to teaching people to read.

For centuries the Bible was the only reference book of the theologians. The scientific group respected the Bible as a book written by many ancient men with various views colored by their own opinion. One group believed everything should be taken as factual, the other believed that the writings should be taken as a combination of literature, opinion, wisdom, philosophy, and myth. In spite of opposition, evolution continued to march on. Self-preservation is the law of life, therefore the law of the theologian. Unknowingly he became evolutionary. It is the only way he could exist in a world of readers.

As a result we now have great thinkers who are both theologians and scientists. Many of our religious colleges and universities maintain large departments of science. Biology, anatomy, paleontology, and anthropology are studied. A short century ago the very mention of these fields of learning would have branded one as an atheist and a radical for the reason that it would have been considered confusing to place the actual wording of the Bible alongside the factual evidence of evolutionary science.

LET us recapitulate the gradual change that has taken place. The steps in this progress are as follows: All scientific thought barred as being opposed to the Word of God; a gradual tolerance of science; a tendency for theologians to study science; a willingness to encourage youth to do likewise.

And thus the original two great opposing ideas are becoming united on a common basis for common good. To further this coalition possibly it is now time for the scientist to recommend the study of religion. The scientist is reverent, factual, skeptical, analytical, challenging. He is opposed to accepting what appears to him as nonfactual material. His contention has been that the more we know of the mathematical exactness of the universe and the more we understand the apparent phenomena of the creation, the more reverent we will be. That truth and reverence are more wholesome than fear and reverence.

With regard to science and religion, youth is in a quandary and has been for at least three decades. The controversy which has been going on for thousands of years is just coming to a place where there is almost no need for a divergence of opinion. Yet, due to fear of adult reaction, the public school, to which we owe most of our enlightenment, still handles the subject of religion as though it were a lighted bomb. Fear and intolerance are, even today, just around the corner—although they are not so prevalent as once they were. Since we are afraid and run away from facts, it is time we become courageous by throwing light upon the thing we fear.

ON the premise that young people should have greater knowledge of the word of God, is it expecting too much to say that we can win the youth over to the church by teaching the Bible in the public school?

In some respects no child in the world is in a more deplorable state in the matter of religious instruction than the child in the American public school. . . . Speaking as a Catholic priest of thirty years' experience in the educational field, I will frankly say that I would rather send a Catholic boy or girl to a school

in which his Catholic religion was openly and officially decried in favor of some other denomination, than to send him to a school in which all religion was simply ignored. . . . He is now compelled to seek religion elsewhere, as if it were a poison or harmful drug.[1]

We know that most religious leaders fear the analytical X-ray which the public school might put upon the Bible, yet study of the Bible need not be approached from this viewpoint. Study it, not as religion, but as literature. It could all be handled in the Social Science Department. From Amos we could teach social justice; from the Sermon on the Mount, we could deduce a world social order; from Proverbs and Revelations, wisdom; from the Psalms, beauty and philosophy. The first page of the Book of Genesis could be correlated easily with Darwin's theory of evolution. The Bible stories could be treated as folk tales, borrowed from older religions, and used by ancient people to illustrate a fundamental point.

At present we attempt to treat all these tales as truth. People who have learned to read and think doubt the authenticity of many of them, yet have a deep reverence for the major portion of the Bible. Resenting the fact that they are told to believe all, they avoid reading any. Acquaintanceship with the Bible could be gained and respect maintained by studying certain portions in the classroom. The Sunday School alone cannot do enough, for the reason that it reaches too few.

Man's conception of the spiritual world has been subjected to a long series of disintegrating shocks with the successive stages of scientific progress. . . . Many thoughtful people who are concerned by the decline of organized religion consider that religious teaching in school might become a steadying influence. . . . As it is now we are baffled by the task of reconciling religious faith with scientific knowledge.[2]

As long as the Bible was regarded as the infallible "Word of God," there were persons who, with more sense than sympathy, scoffed at it because so many of its passages are ungodly. But the ground is taken from under the feet of the scoffers when the human origin of the Bible is recognized: for then its cruder passages are seen to be only the inevitable imperfections of struggling humanity, with which we, still struggling today, must warmly sympathize.[3]

It is hoped that we have arrived at the evolutionary stage where, with one accord, theologians and scientists can agree to present portions of the great work of the Bible to the youth of America. If we cannot, it is simply because the idea of it is too advanced to cope with the remnants of fear, superstition, intolerance, and selfishness that have always been with us before and since we crawled out of the cave.

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1 Francis A. Walsh, "Religion and Education," *Commonweal*, 25:317, January, 1937.

2 James W. D. Smith, "Place of Religion in Education," *Contemporary History*, 149:88-95, January, 1936.

3 See William Morris Davis, "The Faith of Reverent Science," *The Scientific Monthly*, May, 1934, p. 403.

Northern California Junior College Body Meets

The fall meeting of the Northern California Junior College Association was held in the new School of Education Building at Stanford University, Saturday, November 5. The program was devoted to an address and subsequent audience discussion on the topic: "What Is the Place of the Junior College in Relation to Higher than Junior College Education, Technical Training, General Education, and Community Life?"

What's Happening in Los Angeles County Secondary Schools

Prepared by C. C. TRILLINGHAM[1]

Monrovia-Arcadia-Duarte High School Makes Significant Professional Survey.—Under the leadership of Principal J. Warren Ayer, a constructive survey of the Monrovia-Arcadia-Duarte High School organization and program was made in the spring of 1938. Dr. A. A. Douglass, chief of the Division of Secondary Education in the State Department, was chairman of the Survey Committee. The other two members were Dr. L. A. Williams, University of California at Berkeley, and Dr. J. Harold Williams, University of California at Los Angeles.

The Survey Committee and the Board of Trustees were insistent that the investigation of school conditions and the proposals for improvement should be made with the coöperation and participation of the teachers and administrators of the school. The plan for making the survey was a unique one. The members of the Survey Committee did not visit individual teachers themselves. They invited a number of persons from outside of the district to observe the work in the classrooms and to hold conferences with the teachers. These visitors were competent persons in their several fields and were approved by the teacher groups before they were invited to visit the schools. In conference with the small teacher groups, the visitors considered curriculum organization, methods of instruction and guidance, and the like.

These conferences resulted in the recognition of both strong and weak points in the school program. Teachers offered their own suggestions for improvement. The several visitors then prepared their written reports and sent them to the Survey Committee, which in turn developed the final survey report.

In order to accomplish the recommendations of the Survey Committee, six curriculum committees have been organized among the teachers, as follows: applied arts, health and physical education, science and mathematics, social studies, language and literature, and fine arts. In addition, special advisory committees have been formed for ninth year orientation and school and community reaction.

* * *

Seventh Graders in the Compton District Have Course in "Reading Development."—For the second consecutive year and as a result of a survey made to gauge the reading ability of the students in the junior high schools of the Compton district, it was found that there was a definite need for student improvement in reading. To meet this need, a program of reading improvement has been adopted for all the junior high schools of the Compton Union Secondary District. All students entering the seventh grades are given a course in reading improvement which carries on throughout the full four years of the junior high school expe-

[1] For the October and November issues, Dr. C. C. Trillingham, assistant county superintendent of Los Angeles, takes over this column which is ordinarily entitled "What's Happening in California Secondary Schools" and is edited by Dr. Aubrey A. Douglass.

rience. The importance of this program cannot be overemphasized when it is realized that the ability to read effectively and understandingly controls and limits the degree of success that can be attained by a student in his school experience.

This course in the main comprises the seventh grade English requirement of every student. After a year of scientific procedure in which a thorough testing program was used, material improvement of reading ability and consequently general improvement in all academic school work has been noticed. Essentials in grammar, spelling, and vocabulary expansion are taught purely through the correct usage approach.

To avoid any terms that hint of criticism of the elementary schools, the designation of "remedial reading" has been discarded and "reading development" substituted, according to F. C. Hemphill, superintendent and director of the junior high schools.

* * *

Puente Union High School Has New Athletic Field and Playground.—The new athletic field of the Puente Union High School will be dedicated at the Claremont-Puente game. The new development consists of a well-turfed football field surrounded by a quarter-mile track which has a 220-yard straight-away. The track layout is 30 feet wide and bordered by concrete curbs. A new fence has been built around the entire field which will keep off the spectators. New bleachers have been built which double the previous seating capacity.

The board of education also has let the contract for a new agriculture and shop building which will house classes in agricultural science, architectural and mechanical drawing, woodwork, agriculture mechanics, and general mechanics.

A new departure is being tried out in girls' physical education at Puente this year. The new instructor, qualified for both physical education and nursing, offers a well-rounded course in physical education including units in hygiene, home nursing, physiology, and other related fields. The plan has proved feasible for the small or medium sized high school.

* * *

Montebello Secondary Schools Are Reorganized.—Three new Montebello junior high school buildings were occupied at the beginning of the present school year. Lee Collins, formerly principal of the Central Elementary School, is principal of the Montebello Junior High School. Stuart Rough, formerly social science instructor in the Montebello High School, is principal of the Eastmont Junior High School. James Wise, formerly principal of the Winter Gardens Elementary School, is principal of the Bell Gardens Junior High School. These schools started out with an approximate enrollment of 400 pupils each and with a total faculty of forty teachers.

Dr. Arthur L. Marble, formerly of the Utah State Agricultural College, has been appointed guidance director and coördinator of curriculum for the three junior high schools and the senior high school.

In regard to the new program of curriculum development, Superintendent Mark Jacobs states: "Dr. Marble will work directly with R. E. Currier, formerly associate professor of education at Whittier College, who is now coordinator of curriculum and instruction for the twelve elementary schools in the Montebello School District. This cooperation in curriculum improvement is in keeping with the ideals of the unified school district in which the education of the pupil from the kindergarten through the twelfth grade is conceived as one continuous process."

John L. Love is principal of Montebello Senior High School, and Trent Steele, formerly social science instructor, is the new vice-principal. George Schurr, formerly vice-principal of the senior high school, is now business manager for the Montebello unified school district.

* * *

Pasadena Schools Take Final Step in the Completion of Their Six-Four-Four Plan of Organization.—The Pasadena Board of Education has taken steps to merge the John Muir Technical High School with the Pasadena Junior College, thus making only one division of the upper school which enrolls between 6,000 and 7,000 students. Dr. John W. Harbeson serves as principal of the school on both the east and west campuses, and Rufus Mead, formerly principal of Muir Technical School, is associate principal of the new junior college. Mr. Mead describes the new set-up as follows:

"Our high school has always cut across the junior high and junior college in grades, but our enrollment has been developing steadily in such a way that we really had a two-year high school consisting of eleventh and twelfth grades. This is an impossible situation as you may realize. The Pasadena Junior College plant has become so crowded that they have needed to expand; our plant is able to take care of 500 or 600 more students than we have at present. So, after due consideration, it was decided to combine the two institutions under one management to be known as the East and West Campus of the Pasadena Junior College.

"General junior college work, certificate work, and other courses will be given on both campuses, but specialized work which requires a large outlay in equipment and materials will be given some on one campus and some on the other."

South Pasadena Secondary Schools Progress Along Several Lines.—At South Pasadena, social living courses have been established in the seventh, eighth, and ninth grades, in which the problem approach to education is developed. The social living work is not confined to English and social studies alone. The music and art teachers are scheduled in these classes with the regular social living teachers to help discover and develop possibilities for related aesthetic experiences.

These courses have assimilated the activities of the former homerooms and include certain orientation features. They are not always the centers of guidance, however, for guidance is handled in any subject field in which a problem develops, thus permitting the treatment of a problem at its point of origin.

Two new English courses, free reading and vocational English, enable that department to do a better job of caring for the needs of various students. A new biology classroom, large, well lighted and equipped with modern apparatus, was necessary to take care of the increased enrollment in that department.

Four new teachers, new textbooks for five of the academic departments, new equipment for the woodshop, and redecorated buildings have done much to add to the merit and interest of school work at South Pasadena. All of the campus of the senior high school is now either in grass or macadam—including both the boys' and girls' athletic fields. Recently a public address system has been installed in the new senior high school auditorium.

* * *

Fullerton Junior College Expands Technical Program.—The technical program which Fullerton Junior College introduced this fall is an extension of work which Fullerton has been doing right along, writes W. T. Boyce, dean

of the college. No new curriculums have been added, but five curriculums have been reconstructed to bring them in line with the requirements of the Federal vocational acts. The reconstruction is mainly in the increased amount of time devoted to the technical skill which is at the heart of the curriculum. The work is housed in the school's new Technical Education Building, which is equipped with up-to-date machines and tools. Five of the college instructors were able to qualify for Federal certificates.

Each technical curriculum may be considered as composed of three parts, namely:

1. Subject matter and shop work designed to furnish the information and skill necessary to hold a job in a particular type of industry.

2. Related subject matter to give the student a preliminary understanding of the theory which underlies his practical work and which will furnish a considerable breadth of information in a family of industry.

3. A few general education short courses for personal efficiency.

The general education courses are to be developed to meet the needs of technical students. In other words, technical students will not be enrolled in previously established courses of a general education type. These courses are mainly in English, letter writing, bookkeeping, fundamentals of business, and the two subjects required for graduation, namely, Health Science and American Institutions. Technical curriculums are constructed on the assumption that basic education for a general type of job is more useful than trade education for the particular job. It is expected, however, that the student will acquire some very definite skill in the use of machinery, tools, and processes with which he will have to work in actual experience as an employee.

One feature of the new program is a time allowance on the program of each instructor and of the supervisor of the program for contacting the industries and carrying out a program of placement and coördination.

* * *

Pasadena Secondary Schools Organize to Meet the Needs of Their Students.—The Pasadena school staff will give particular attention to meeting the occupational interests and needs of the students during the 1938-39 school year. This is being accomplished first through courses directly related to the occupational interests of youth, and secondly through more adequate guidance of young workers through a coordination program involving both staff members and men and women engaged in industry itself.

Last year committees were organized in the following areas: principles and objectives, growth needs, evaluation, methods and materials, and organization and working relationships. A steering committee, composed of the committee chairmen and several consultants in administration, supervision, guidance and curriculum, had the task of coordinating and guiding the work of the various committees named. Extensive bibliographies of pertinent research materials were prepared and each committee group first oriented itself in the particular area in which it was to work. Administrators, teachers, pupils and parents, all coöperated in appraising varied aspects of the present school program, in suggesting possible improvements, and in judging as to vital growth needs and interests of adolescents. These interesting data from thousands of parents and pupils and from hundreds of members of the school staff are being summarized for careful study and interpretation by the committees and the administrative and supervisory staff.

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New Books

A NUMBER of new books of interest to the teacher of social studies have been received for review purposes at the offices of the CALIFORNIA JOURNAL OF SECONDARY EDUCATION. Among the more important of them are the following:

The Federalist, from the original text of Alexander Hamilton, John Jay, and James Madison. National Home Library Foundation, Washington, D. C. Paper edition, 50 cents; 618 pages.

A new edition of the essays written in support of the Constitution of the United States with an introduction by Edward Mead Earle.

Man's Great Adventure, by Edwin W. Pahlow. Ginn & Company, 1938 (revised). Price, $2.20; 766 pages.

Written in an informal dynamic style and with frequent maps, charts, and illustrations, many in color, it seeks to make of the one-year world-history course a "great adventure." The revised edition contains more factual material than did its predecessors. Approximately 40 per cent of the space in this history is devoted to the period since the French Revolution. The book has been prepared in line with significant developments in the history teaching field as revealed by recent reports.

Social Arts Digest, by Nell M. Eberts. Suttonhouse, Los Angeles, 1938. Price, $1.75; 127 pages.

This is a manual designed to help the teacher and the student in studying the "social arts." It covers such topics as: the family, hospitality dances, introductions, servants, gifts, leisure, personality, et cetera.

Social Life and Personality, by Emory S. Bogardus and Robert H. Lewis. Silver Burdett Company, 1938. Price, $1.80; 581 pages.

A high school textbook in sociology which places emphasis upon the normal rather than upon the abnormal way of living and which leads the student to see how personality is shaped and changed by the social environment in which he lives.

To Buy or Not to Buy, by Edward M. Andres. Publishing Department, Phoenix Junior College, Phoenix, Arizona, 1938.

A series of pamphlets for the guidance of consumers. The first of these, entitled "Facts About Dentifrices," sells for 5 cents as a single copy, but a price of 3 cents or less is made on quantity orders.

The United States at Work, by Maude Cottingham Martin and Clyde Edwards Cooper. D. C. Heath & Company, 1938. Price, $1.96; 656 pages. (The 37-page "Teachers' Manual" to accompany the book sells for 16 cents.)

A junior high school geography based on a study of the United States in its world rela-

tions. It stresses the relationship between regions and between the United States and other countries.

Among the current descriptions of what is going on in our schools are the following two, which in title, make-up, and content are particularly intriguing:

Let's Go to School, by Albion H. Horrall, Lydia E. Codone, Mabel S. Willson, and Leah Smith Rhodes. McGraw-Hill Book Company, 1938. Price, $3; 434 pages.

The book shows how a modern activity program can be developed for average and underprivileged children in the elementary school of an American city of moderate size. It describes what has actually been done in San Jose, California, and illustrates "the enduring educational principle that good schools are made not by books, bricks, and gadgets, but by the intelligence, imagination, and courage of its teachers."

The School Ma'am, by Frances R. Donovan. New York: Frederick A. Stokes Company, 1938. Price, $2.50; 355 pages.

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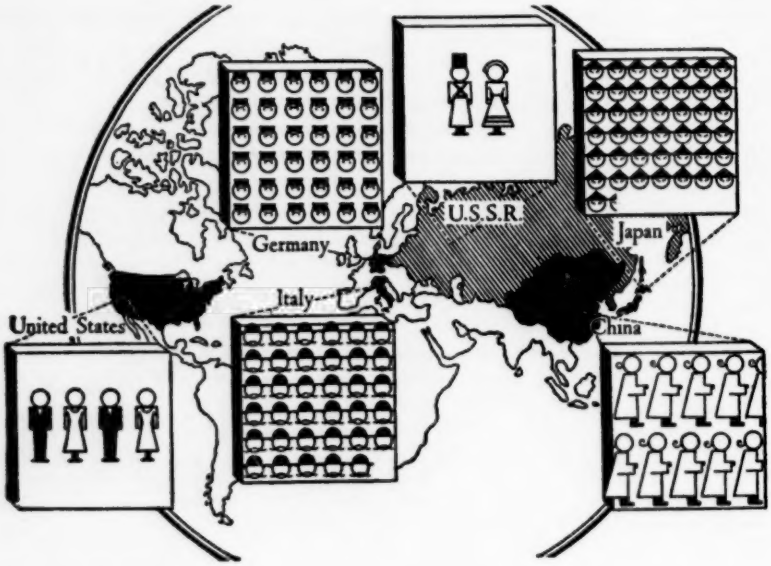

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